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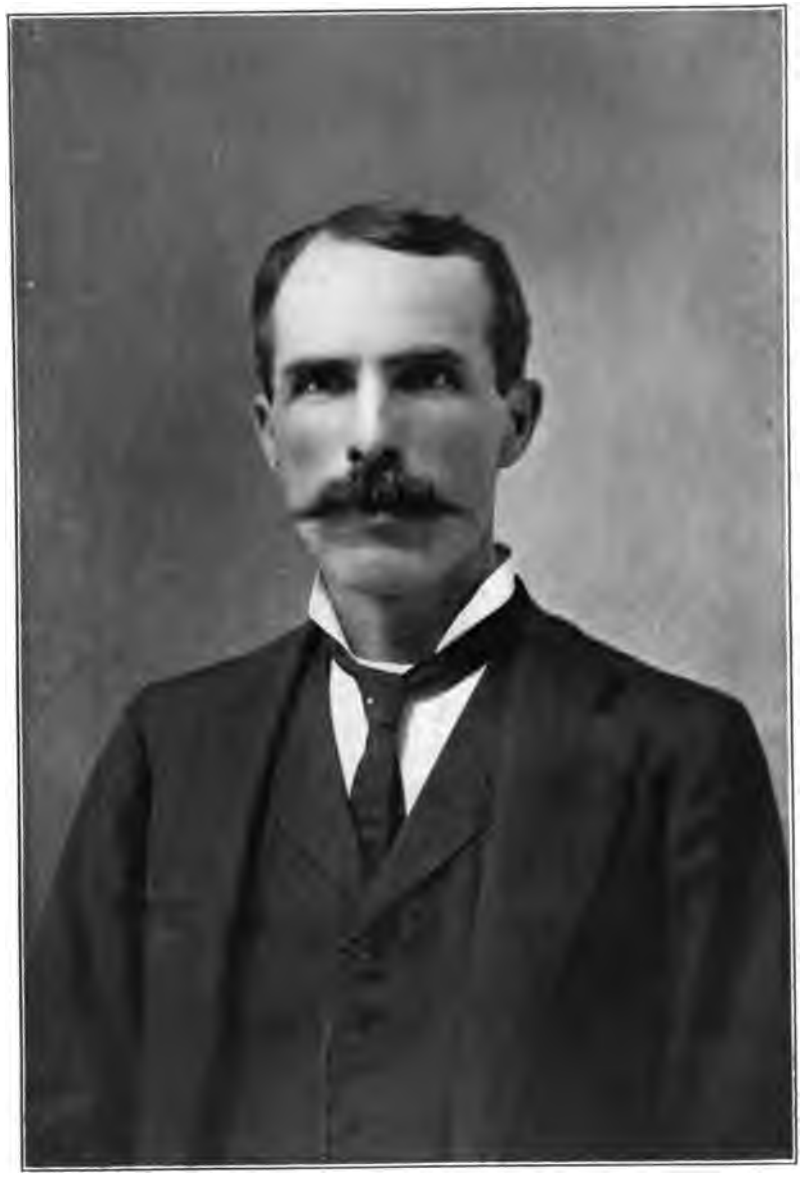

S. C. RED, PRESIDENT.

TRANSACTIONS

OF THE

STATE MEDICAL ASSOCIATION

OF TEXAS

THIRTY-FOURTH ANNUAL SESSION

HELD AT

DALLAS, TEXAS,

MAY 6TH, 7TH, 8TH AND 9TH, 1902.

AUSTIN, TEXAS:
VON BOECKMANN, SCHUTZE & CO., PRINTERS,
1902.

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NOTE.

The Association does not hold itself responsible for the opinions enunciated in the papers and discussions herein published. Minutes reported by Mr. Samuel Bennett, 991 Bergen St., Brooklyn, New York.

H. A. WEST,
Secretary.

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ARTICLES OF INCORPORATION

OF

The State Medical Association of Texas.

Know all men by these presents: That the undersigned have associated themselves and do by these presents associate themselves for the purpose of forming a corporation under the following articles of incorporation:

1. The name of said corporation shall be "State Medical Association of Texas."

2. The purposes for which said corporation is organized are as follows: To organize the regular medical profession of the State of Texas, and to encourage a high standard of professional qualifications and ethics; promote professional brotherhood and advance State medicine, *i. e.*, public hygiene, medical education, medical jurisprudence, and public institutions for the sick and infirm.

3. Said corporation shall transact its business in the State of Texas, and have its principal office and place of business in the city of Austin, Texas.

4. It shall exist for fifty years.

5. Its Board of Directors or Trustees shall consist of five members, and the names and places of residence of those to serve the first year, respectively, as follows: B. E. Hadra, Dallas, Texas; Taylor Hudson, Belton, Texas; R. F. Miller, Sherman, Texas; H. P. Cooke, Galveston, Texas; H. A. West, Galveston, Texas.

OFFICERS FOR 1902-1903.

PRESIDENT.

S. C. RED.....Houston.

FIRST VICE-PRESIDENT.

J. E. THOMPSON.....Galveston.

SECOND VICE-PRESIDENT.

J. E. GILCREEST.....Gainesville.

THIRD VICE-PRESIDENT.

H. K. LEAKE.....Dallas.

TRUSTEES.

F. D. THOMPSON.....Fort Worth.
J. D. OSBORN.....Cleburne.
WALTER SHROPSHIRE.....Yoakum.
J. B. SHELMIRE.....Dallas.
JOS. BECTON.....Greenville.

JUDICIAL COUNCIL.

J. C. ANDERSON, Granger.....One Year.
T. J. BELL, Tyler.....One Year.
A. E. SPOHN, Corpus Christi.....One Year.
W. A. WOOD, Hubbard.....One Year.
T. J. PIER, Carmine.....Two Years.
W. C. BLALOCK, Kosse.....Two Years.
J. E. THOMPSON, Galveston.....Two Years.
S. T. TURNER, El Paso.....Two Years.
J. S. LANKFORD, San Antonio.....Three Years.
C. C. GIDNEY, Granger.....Three Years.
H. A. BARR, Beaumont.....Three Years.
J. O. MCREYNOLDS, Dallas.....Three Years.

ORATOR.

MARVIN L. GRAVES.....San Antonio.

DELEGATES TO AMERICAN MEDICAL ASSOCIATION.

H. A. WEST, Galveston.....For Two Years.
J. T. WILSON, Sherman.....Alternate.

SECTION ON GENERAL MEDICINE.

W. C. BLALOCK, Chairman.....Kosse.
J. T. MOORE, Secretary.....Galveston.

SECTION ON OBSTETRICS AND DISEASES OF CHILDREN.

J. C. ANDERSON, Chairman.....Granger.
C. E. CANTRELL, Secretary.....Greenville.

SECTION ON SURGERY.

W. KEILLER, Chairman.....Galveston.
I. P. GUNBY, Secretary.....Sherman.

SECTION ON MEDICAL JURISPRUDENCE.

J. R. NICHOLS, Chairman.....Terrell.
R. B. SELLERS, Secretary.....San Antonio.

SECTION ON STATE MEDICINE AND PUBLIC HYGIENE.

FRANK PASCHAL, Chairman.....San Antonio.
H. W. CROUSE, Secretary.....Victoria.

SECTION ON GYNECOLOGY.

J. B. SMOOT, Chairman.....Dallas.
HOLMAN TAYLOR, Secretary.....Marshall.

SECTION ON OPHTHALMOLOGY, OTOLOGY, RHINOLOGY AND LARYNGOLOGY.

HENRY C. HADEN, Chairman.....Galveston.
W. A. HARPER, Secretary.....Austin.

SECTION ON DERMATOLOGY.

W. B. RUSS, Chairman.....San Antonio.
H. B. DECHERD, Secretary.....Galveston.

SECTION ON PATHOLOGY.

ALLEN J. SMITH, Chairman.....Galveston.
J. M. FRAZIER, Secretary.....Belton.

PUBLISHING COMMITTEE.

H. A. WEST, Chairman (ex-officio).....Galveston.
HENRY C. HADEN.....Galveston.

COMMITTEE OF ARRANGEMENTS.

FRANK PASCHAL, Chairman.....San Antonio.

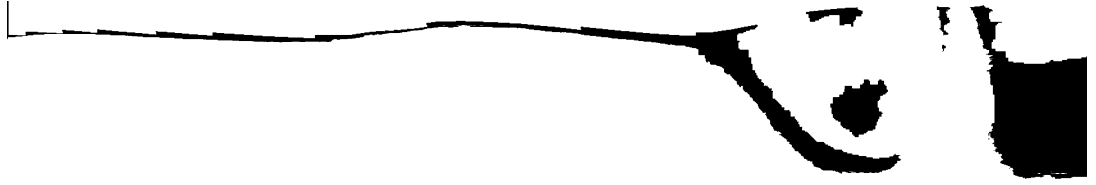
COMMITTEE ON STATE BOARD OF HEALTH.

F. E. DANIEL, Chairman.....Austin.
FRANK PASCHAL.....San Antonio.
BACON SAUNDERS.....Fort Worth.
P. C. COLEMAN.....Colorado.
W. R. BLAILOCK.....McGregor.
GEO. R. TABOR.....Austin.

COMMITTEE ON ORGANIZATION OF MEDICAL SOCIETIES.

(CONTINUED.)

First District.—SAM R. BURROUGHS.....Buffalo.
Second District.—J. H. EVANS.....Palestine.
Third District.—T. J. BELL.....Tyler.
Fourth District.—R. R. WALKER.....Paris.
Fifth District.—J. E. GILCREEST.....Gainesville.
Sixth District.—J. D. OSBORN.....Cleburne.
Seventh District.—W. R. BLAILOCK.....McGregor.
Eighth District.—C. M. ALEXANDER.....Coleman.
Ninth District.—M. M. SMITH.....Austin.
Tenth District.—J. T. CARTER.....Walhalla.
Eleventh District.—T. H. NOTT.....Goliad.
Twelfth District.—J. V. SPRING.....San Antonio.
Thirteenth District.—P. C. COLEMAN.....Colorado.



CONSTITUTION AND BY-LAWS

OF

The State Medical Association of Texas.

CONSTITUTION.

ARTICLE I.

The name and style of this Association shall be the "STATE MEDICAL ASSOCIATION OF TEXAS."

ARTICLE II.

The object of this Association shall be to organize the regular medical profession of the State in the most efficient manner possible; to encourage a high standard of professional qualifications and ethics; to promote professional brotherhood; to labor for the advancement of State medicine, i. e., of public hygiene; of medical education; of medical jurisprudence and public institutions for the sick and infirm.

ARTICLE III.

Every regularly educated physician within the limits of this State, who is a graduate of a regular medical college in good standing, and who adopts and conforms to the Code of Ethics of the American Medical Association, shall be eligible to membership in this Association, except those of the negro race; provided, that no person shall be eligible to membership who has not complied with the laws of Texas governing the practice of medicine now in force or that shall be hereafter enacted.

ARTICLE IV.

SECTION 1. The officers of this Association shall be one president, three vice-presidents, one secretary, one treasurer, nine chairmen and secretaries of sections, and twelve members of the judicial council.

SEC. 2. The president and vice-presidents shall be elected for one year; the secretary and treasurer shall be elected each for five years; and every officer shall remain in office until his successor is duly elected and installed.

ARTICLE V.

SECTION 1. It shall be the duty of the president to preside at all meetings of the Association, when present; to give the casting vote; to see that all the rules of order and decorum are enforced in all deliberations of the body; to sign the approved proceedings of each meeting, and to approve such orders as may be drawn upon the treasurer for expenditures ordered by the Association.

SEC. 2. It shall be the duty of the first vice-president to preside in the absence of the president; and in the absence of the president and first vice-president the second vice-president shall preside; and in the absence of the president, first and second vice-presidents, the third vice-president shall preside.

SEC. 3. In the absence of the president and all the vice-presidents the Association shall, by ballot, elect one of its members to preside *pro tem.*

SEC. 4. It shall be the duty of the secretary to keep a true and correct record of the proceedings of each meeting; to preserve all books, papers and things belonging to the archives of the Association; attest all orders drawn upon the treasurer for moneys appropriated by the Association; keep a register of the members, the dates of their admission and places of residence. He shall attend all committees that may be appointed by the Association with such documents as may be necessary for reference; report such unfinished business of the previous meetings as may appear upon his books, requiring action, and shall attend to such other business as the Association may direct. He shall also supervise and conduct all the correspondence of the Association.

SEC. 5. It shall be the duty of the treasurer to collect all moneys due the Association and receipt for same; and keep the accounts of the Association with its members, and pay all orders drawn on him by the president and attested by the secretary and by the chairman of the committee of publication, and make an annual report of the finances of the Association, and furnish the secretary with a list of delinquent members; and, if required, give bond for the faithful performance of the duties of his office.

ARTICLE VI.

Vacancies occurring in the office of the Association shall be filled by appointment by the president, and he shall have the appointment of all the committees not otherwise provided for.

ARTICLE VII.

SECTION 1. The basis of affiliation of county and district societies shall be as follows: First. The adoption of the Code of Ethics of the Ameri-

can Medical Association. Second. The payment annually into the treasury of the State Association of ten cents per member. Third. Payment to be made by the first of April in each year. Each county, city, or district society shall be entitled to send delegates to each meeting of the State Association upon a numerical basis as follows: For fifty members or under, one delegate. For each additional fifty members or fraction over thirty, one delegate. Each delegate shall be entitled to all the privileges of membership without payment of dues or initiation fees for the fiscal year to which they may be delegates.

SEC. 2. This constitution shall immediately take effect from its adoption.

BY-LAWS.

ARTICLE I.

The State Medical Association of Texas shall meet annually at such time and place as may be determined by the committee on nomination.

ARTICLE II.

Fifteen members or any number over shall constitute a quorum for business.

ARTICLE III.

The president shall call the meeting to order, cause the secretary to read the proceedings for the previous meeting, which, after approval, shall be adopted.

ARTICLE IV.

In case there be no quorum, the meeting shall adjourn from day to day until such quorum be had.

ARTICLE V.

The annual dues of each member shall be $5.00 United States currency. Initiation fee, $2.50.

ARTICLE VI.

The usual parliamentary rules governing deliberative bodies shall govern the business workings of this Association.

ARTICLE VII.

All questions of business before this Association shall be determined by a majority of votes present.

ARTICLE VIII.

It shall be the duty of the president to deliver, at each annual meeting of the Association, an address.

ARTICLE IX.

One member from each congressional district represented shall constitute a committee on nomination for officers and place of meeting. Said committee shall report action at the beginning of the session on the morning of adjournment. Five members shall constitute a quorum for the transaction of business. Their duties shall be to nominate a president, three vice-presidents, secretary, treasurer, members of the judicial council, delegates to the American Medical Association, and places of meeting.

NOTE.—Since the adoption of the amended constitution it has been the custom to present two names for the office of president, a majority vote deciding the election.

ARTICLE X.

The secretary of the Association shall receive at each annual session a draft from the president upon the treasurer for the sum of $300.00 for valuable services rendered; he shall also be allowed to draw upon the treasurer for expenses incident to his office. The treasurer shall receive for his services $150.00 per annum.

NOTE.—The Association having acted in accordance with the above since the meeting at Fort Worth in 1896, it was decided that Article XVII of the by-laws had been practically enforced.

ARTICLE XI.

It shall be the duty of the president, three months prior to each annual meeting of the Association, to notify by circular the profession of the State and county organizations throughout the State, and urge attendance.

ARTICLE XII.

No personal grievances shall be allowed to come before the general body for discussion. All questions of a personal character, including complaints and protests, and all questions on credentials, shall be submitted

in writing, read by the secretary, and referred by the president at once to the judicial council, without discussion.

ARTICLE XIII.—JUDICIAL COUNCIL.

SECTION 1. A council consisting of twelve members shall be appointed by the nominating committee, whose duty it shall be to take cognizance of and decide all questions of an ethical judicial character that may arise in connection with the Association.

SEC. 2. Of the twelve members of the council first appointed the four first named on the list shall hold office for one year, the second four named shall hold office for two years, and the third four named shall hold office for three years; so that four new members shall be appointed each year, who shall hold office for three years. The said council shall organize by choosing a president and a secretary, and shall keep a permanent record of its proceedings.

SEC. 3. It shall be the duty of the judicial council to discipline members for infraction of the Code of Ethics, or for violation of any special order or resolution of this Association, its constitution or by-laws. Such discipline may be either (*a*) reprimand, (*b*) suspension for any definite period, (*c*) expulsion from the Association.

SEC. 4. Charges against a member shall be presented in writing over the signature of the accuser with specifications as to the time and place of the offense and names and residences of his witnesses, to the chairman of the judicial council, who shall submit the same to the council at its next meeting.

SEC. 5. The judicial council shall consider the charges and specifications, also the reliability of the accuser and the witnesses, and shall by vote decide either to "entertain" or "not entertain" said charges. In the latter case the charges shall be returned to their author with the action of the council endorsed thereon. If the council decides to entertain the charges, it shall notify the accused, furnish him with a copy of the charges, specifications and names of witnesses, also the time and place where the case shall be heard. The accuser shall also be notified of the same and instructed to have his witnesses present. After a full hearing the council shall vote upon the guilt of the accused, and if guilty, assess his punishment. As soon after the trial as possible, it shall be the duty of the council to report its action to the Association.

SEC. 6. The Association shall thereupon, without discussion, vote upon the report of the council by ballot, a majority deciding its adoption or rejection. The action of the Association shall be final, the Association claiming jurisdiction as to who shall constitute its members and what punishment shall be inflicted upon those who violate its rules and regulations.

ARTICLE XIV.—SECTIONS.

The general meeting of the Association shall occupy not exceeding two and one-half hours of the first morning session, and not to exceed one hour of each other morning session, and the remainder of the morning sessions, the afternoon and first two evening sessions shall be devoted to the hearing of reports and papers and their consideration in the following sections:

1. Practice of Medicine, Materia Medica and Physiology.
2. Obstetrics and Diseases of Children.
3. Surgery and Anatomy.
4. Medical Jurisprudence, Chemistry and Psychology.
5. State Medicine and Public Hygiene.
6. Gynecology.
7. Ophthalmology and Otology.
8. Dermatology and Medical Botany.
9. Microscopy and Pathology.

ARTICLE XV.

The reading of all papers before the sections of this Association shall occupy not exceeding twenty minutes, except by permission. All discussion shall be limited to five minutes, unless by unanimous consent of the sections, except the author of the paper, who shall have ten minutes in which to close, and no member shall speak to the same subject more than once, without permission.

ARTICLE XVI.

The president and vice-presidents of the Association shall constitute a committee, whose duty it shall be at each meeting of the Association, to select a chairman and secretary for each section, to serve during the next succeeding year. The committee shall also select the name of some subject for each section, a member to present the subject, and also one to open the discussion of same. These officers shall hold their office until the close of the proper business of the annual meeting next succeeding their election, and until their successors are appointed. This committee shall present its report to the Association on the morning of adjournment after the report of the nominating committee. Vacancies in this committee shall be filled by appointment of the president.

ARTICLE XVII.

The foregoing constitution and by-laws shall not be altered or amended except when the proposed amendment is offered in writing at a regular meeting, laid over until the next regular meeting, and be adopted by two-thirds of the votes cast.

MINUTES

OF THE

THIRTY-FOURTH ANNUAL MEETING

OF THE

STATE MEDICAL ASSOCIATION OF TEXAS,

HELD AT

DALLAS, TEXAS,

MAY 6TH, 7TH, 8TH AND 9TH, 1902.

STATE MEDICAL ASSOCIATION OF TEXAS,

THIRTY-FOURTH ANNUAL MEETING.

FIRST DAY.—*Morning Session.*

CITY HALL, DALLAS, May 6, 1902.

The thirty-fourth annual meeting of the State Medical Association of Texas was opened in Dallas, on Tuesday, May 6, 1902, the sessions being held in the City Hall.

Dr. John O. McReynolds, Chairman of the Committee on Arrangements, having called the meeting to order, an invocation was offered by the Rev. Hudson Stuck, dean of St. Matthews Cathedral.

Dr. McReynolds then said, "I have now much pleasure in introducing to you the Hon. Ben E. Cabell, our distinguished mayor.

The mayor then welcomed the Association in a few well-chosen words.

Dr. McReynolds: We will now have the pleasure of listening to a brief scholarly address by our city health officer, Dr. Smart.

DR. SMART: I am sorry I have no scholarly oration prepared for you. I have an office that takes up a great deal of my time, and it was impossible for me to make any extensive preparation, so I simply wish to say that the medical profession of Dallas appreciates what the State Association has done for medicine, is doing now, and has planned to do in the future. We know how you stand in regard to the prevention of diseases and its treatment. From the bottom of our hearts, we accord you the heartiest welcome. We want you to have a good time while you are with us, and will make every effort to make your visit both profitable and pleasant. We shall do the best we can to keep up the good name of Dallas.

Dr. Taylor Hudson, President of the Association, replied as follows:

Mr. Chairman, Ladies and Gentlemen:

The reputation of your city for genuine Southern hospitality has long been established, not only in Texas, but in many States adjoining.

When it was decided that the Medical Association should meet in Dallas, the hospitality of the city was never questioned, for this Association has

met here twice before, and those meetings are not forgotten. And the numerous large bodies that have, from time to time, been so royally cared for by your broad-minded citizens all spoke too plainly of what you were and what you would be. None of them, however, had given you a fair test of your real strength. It was left for that grand and chivalrous body, the United Confederate Veterans, to give you the real test of your metal.

Never in my knowledge has a city of the size and strength of Dallas carried out so successfully such a herculean task. How well you did your part is echoed from every village, town and hamlet in the South, and not even there does it stop; from Maine to California the heroes of "The Lost Cause" proclaims the greatness of Dallas.

Dallas, the cotton center of the world; Dallas, the metropolis of Texas; Dallas, with its institutions of learning, with its large commercial and financial enterprises, its great railroad facilities, its factories, its evidences of thrift; but back of all this is its magnificent citizenship.

We rejoice with you in your many achievements, and had you a sorrow we would weep with you. May no cloud ever cross your skies of prosperity. We appreciate the magnificent evidences of welcome extended us by your mayor and other orators, and hope we may be of some benefit to you as the result of our being with you. Most of all do we appreciate the evidences of the handiwork of the gentler sex.

This feature reassures and encourages us, for never do we find the ladies lending aid to any enterprise or association but that merit and good are recognized in its effort before they stamp it with their seal.

We are not here with microscope, test tubes, scalpel or bistoury. Not searching for bugs or microbes, appendicitis or gall-stones, curved spine or floating kidney. Your able faculty of Dallas have driven all such maladies as require expert work in these lines from your city. It only remains for us to attend to our work and get better acquainted with our Dallas friends.

The Secretary Dr. H. A. West, Galveston, read his report, as follows:

SECRETARY'S REPORT.

Mr. President and Gentlemen:

I beg herewith to submit my annual report, as follows:

MEMBERSHIP.

On the roll Transactions for 1901:

Honorary	27
Ordinary	353
Total	380
Died	7
Total now on roll	373

DEATHS SINCE LAST REPORT.

From the list of honorary members the following should have been previously reported dead, viz: Dr. Nathan Bozeman, New York; Dr. Hunter McGuire, Richmond, Va., and Dr. J. M. Meyer, Danville, Ky.

The following members and ex-members have died:

Dr. W. W. Walker, Schulenberg. Died May 5, 1901.

Dr. J. D. Fennell, Seguin. Died June 28, 1901.

Dr. J. H. Sears, an honored ex-president. Died December 4, 1901.

Dr. C. W. Boggs, Marquez. Died February 19, 1902.

Dr. G. W. Akard, Springtown. Died December 19, 1901.

Dr. J. C. Mayfield, Galveston. Died December 20, 1901.

Dr. Lawrence Ashton, Dallas. Died March 6, 1902.

Dr. J. H. McDaniel, Centerville. Date not reported.

Dr. R. H. Chilton, Dallas. Died June 6, 1901.

Dr. J. B. Massie, Houston. Died August 24, 1901.

There might have been other deaths, but none has been brought to my notice.

THE TRANSACTIONS FOR 1901.

The bid of Von Boeckmann, Schutze & Co., of Austin, as follows, was accepted:

For 540 copies cloth and ten Morocco:

Long primer	$1 00 per page.
Brevier	1 10 per page.

Publishers' Bill.

Five hundred and fifty copies Transactions:

Long primer, 340 pages at $1.00	$340 00
Brevier, 138 pages at $1.10	151 80
Ten copies, Morocco bound	6 00
Wrapping, mailing and delivery	15 00
Five hundred and fifty labels	2 00
Three cuts made to order	4 50
One seal cut	3 00
	$522 30
Postage	109 40
Total	$631 70
Cost per volume, about	1 00
Cost per volume delivered, about	1 20
Number of copies sent out	547
Number of copies on hand	3

The books were ready for delivery the latter part of October, and could have been issued sooner but for the unavoidable absence of the proof reader. The publishers' bill, as well as others, were promptly paid upon presentation. The volume for 1901 speaks for itself. In comparison with former volumes, I think it shows a gratifying improvement both as to the quality of its contents and mechanical execution. The fact remains, however, that to the majority of members the bound volume of proceedings is a "dead letter." The best papers appear elsewhere before publication in the Transactions, and by many the volume is left unopened upon its dust-covered shelf. For these and other cogent reasons the Committee on Revision of the Constitution and By-Laws will recommend that the proceedings of the Association and its component societies be published hereafter in a monthly journal to be established under the management of a board of trustees and an editor elected by the board.

My account with the Association is as follows:

H. A. West, in account with the State Medical Association of Texas:

1901. DR.

August 14, to cash received of Dr. Aug. D. Ferguson, Frost, dues for 1901	$ 7 50
September 7, Denton County Medical Society dues	3 70
October 21, copy Transactions	1 00
December 15, copy Transactions	1 25
December 26, draft on Treasurer, expense President's circulars	20 00
December 28, copy Transactions	1 25
January 1, Dr. A. D. Ferguson, dues 1902	5 00
February 5, draft on Treasurer	38 70
March 17, East Texas Medico-Chirurgical Society, dues	5 20
April 18, Dr. E. Randall, dues	5 00
April 19, South Texas Medical Association, dues	15 20
April 22, draft on Treasurer for R. R. Ticket, stenographer	52 70
April 24, Smith County Medical Society, dues	1 10
	$157 60

1901. CR.

May 1, balance due me	$ 1 20
May 11-July 6, postage	4 00
July 17, express charges	40
July 20-September 10, postage	2 25
August 10, notary fee	1 00
September 16, stationery	15
September 16-October 21, postage	2 00
September 25, Miss Hilton, stenographer	2 00

November 15, stationery	$ 35
December 1-26, postage	8 55
December 26, Miss Hilton, stenographer	5 00
December 26, printer's bill, circulars	5 25
December 26, addressing circulars	2 00
January 6-March 27, postage	8 05
February 4, addressing circulars	2 00
February 4, stenographer	3 50
February 5, F. J. Finck, printing circulars	7 70
February 6, expenses to Dallas	25 00
April 9-21, postage, programs	5 55
February 21, Miss Stein, stenographer	6 50
April 22, I. & G. N. R. R., ticket, New York to Dallas	52 70
April 26, express on reports	90
April 28, Miss Stein, stenographer	2 15
April 29, addressing programs	3 25
	$ 151 45
Balance due Association	6 15
	$ 157 60

AFFILIATING SOCIETIES.

You will recall that in my last annual report mention was made of the plan outlined by the Committee on Reorganization of the American Medical Association. This report was adopted at the St. Paul meeting. A copy of the same was sent to the secretary of each affiliated society with the request that it be read and explained at their respective meetings. Soon after adjournment of the Texas Association, President Hudson appointed the following Committee on Revision of the Constitution and By-Laws, viz.: Drs. J. T. Wilson, J. E. Gilcreest, R. F. Miller, S. C. Red, and H. A. West. This committee has labored industriously to formulate an organic law which would embrace the fundamental principles recommended by the committee of the American Medical Association, and at the same time meet conditions as they exist in the imperial domain of Texas. The results of our deliberations, in part, has been placed in your hands, and will come up for consideration and action. On March the 28th, I addressed a communication to the secretary of affiliated societies explanatory of the fundamental provisions which would be presented in our report, and requesting information as to whether the respective societies would accept the invitation of the State Association on the basis outlined to become its component societies. I also reminded the officers above mentioned that the conditions precedent to the recognition of delegates was observance of Article

VII of the Constitution, requiring payment by the affiliated societies of 10 cents per capita of membership.

The following societies responded and made prompt payment, viz.: Van Zandt County, South Texas, Johnson County, Corsicana District, Dallas Medical and Surgical, Panhandle, Western Texas, Hill County, Houston District, East Texas, Medico-Chirurgical, Grayson County, Smith County, Denton County, Lamar County, Harrison County. The Brenham Medical Society had become defunct, but upon reception of my letter, the secretary, Dr. J. B. York, issued a call to the old members, reorganized the society, and appointed its delegates to the Dallas meeting. The Brazos Valley Association informed me, through its secretary, Dr. W. B. Briggs, that the Association had, through unintentional neglect, failed to make an appropriation for its assessment, but would be on hand at Dallas with the cash and by its delegates. The following societies have not paid, and are not entitled to representation, viz.: Central Texas, Briggs, of Ellis county; Austin Academy of Medicine, Austin District, North Texas, Practitioners of Dallas, and Cass County.

Since compiling this report, the North Texas, Austin District, Austin Academy, Fort Worth Medical Association, San Angelo District Medical Association, Practitioners' Society of Dallas, El Paso County Society, Northwest Texas Medical Association, Comanche County Medical Society, Cooke County Medical Society, Williamson County Medical Society and Terrell Medical Society have paid dues and are entitled to full representation.

The following societies have been organized and affiliated since last report, viz.: Madison, Fort Worth Medical Association, Van Zandt, Lamar, Cass, Harrison and Smith County. The latter has only been organized within the last few days, and will send delegate. The Young County and District Society recently applied for papers to affiliate. Also the Northwest Texas Medical Association and the San Angelo District.

It is hardly necessary for me to say that the societies which have failed or refused to comply with the Constitution of the State Medical Association have *ipso facto* severed all connection therewith.

In order to avoid consumption of the requisite time for careful consideration of the reports of the Committee on Revision by the general session, I have arranged upon the program for reference to a special committee or provisional house of delegates, and would suggest that this committee be so formed as to be as thoroughly representative as possible, in order that action by it may be made final.

I beg to advise you that amendments to the By-Laws were offered by Dr. Harrison (see page 80, Transactions), and by Dr. A. J. Smith and others (page 86). A report is in order from Dr. Harrison, chairman of the Committee of the State Board of Health; also from Dr. W. S. Carter, chairman of the Committee on Prevention of Tuberculosis.

The following appointments were made by the President, viz.: Dr. J. D. Osborne, principal, and J. T. Wilson, alternate, to attend the meeting of the Committee on National Legislation. I have not been informed as yet whether Dr. Osborne attended.

I beg to advise you that Surgeon General Wyman, Marine Hospital Service has apointed Assistant Surgeon Dr. C. E. D. Lord, of Galveston, to represent the service at this meting. Let me remind you that we are entitled to one representative upon the House of Delegates, American Medical Association, to be elected for two years. Provision has been made in the revised By-Laws for payment of traveling and hotel expenses of the delegate; also of the delegate to the meetings of the Committee on National Legislation. In the event of the non-adoption of the new Constitution, provision should be made to pay such expenses.

DUES.

In regard to dues, I would suggest in order to avoid confusion that dues as now operative should be collected. In the event of the adoption of the revised Constitution and reduction in annual dues, any excess paid by members can be credited upon future payments.

Respectfully submitted,

H. A. WEST,
Secretary.

On the motion of J. T. Wilson, Sherman, the report was referred to a committee the President appointed, as follows: Dr. Wilson, Dr. J. D. Dorbandt, Lampasas, and Dr. W. R. Blaylock, McGregor.

The Treasurer, Dr. R. F. Miller, Sherman, submitted his annual report, as follows:

TREASURER'S REPORT.

R. F. Miller, in account with the State Medical Association of Texas:

RECEIPTS.

April 25, 1901.	To balance on hand as per annual report.....	$1,354 11
April 26, 1901.	To dues collected during Galveston meeting...	1,274 20
May 5, 1902.	To dues collected since Galveston meeting.....	524 65
		$3,152 96

DISBURSEMENTS.

April 25, 1901.	By cash paid Secretary West, salary	$	300 00
April 25, 1901.	By cash paid Treasurer Miller, salary		150 00
April 25, 1901.	By cash paid stenographer, Mrs. Buckley		40 00
April 25, 1901.	By cash paid W. Shropshire, campaign fund		73 75
May 1, 1901.	By cash paid U. S. postage		10 00
May 4, 1901.	By cash paid Sherman Printing Co., Treasurer's stationery		13 00
May 13, 1901.	By draft paid H. A. West, bills Finck Printing Co., franchise and stenographer		45 00
May 15, 1901.	By cash paid Treasurer's circular letter		15 00
May 24, 1901.	By cash paid draft H. A. West, charter		10 00
June 5, 1901.	By cash paid draft stenographer, balance		40 60
June 24, 1901.	By cash paid check, fees S. J. White, returned		7 50
June 24, 1901.	By cash paid U. S. postage		5 00
July 11, 1901.	By check paid W. L. Hay, Treasurer's bond		10 00
July 11, 1901.	By draft paid H. A. West, printing and stenography		10 65
Oct. 15, 1901.	By cash paid U. S. postage		5 00
Oct. 29, 1901.	By check paid Von Boeckmann, Schutze & Co., Transactions		522 30
Oct. 31, 1901.	By check paid Von Boeckmann, Schutze & Co., postage		113 61
Nov. 8, 1901.	By check paid Von Boeckmann, Schutze & Co., cuts *Medical News*		10 00
Nov. 16, 1901.	By cash paid U. S. postage		5 00
Dec. 28, 1901.	By draft paid Secretary West, circular letter		20 00
Jan. 18, 1902.	By cash paid U. S. postage		5 00
Feb. 7, 1902.	By draft paid H. A. West, expenses to Dallas		38 70
April 4, 1902.	By cash paid U. S. postage		5 00
April 4, 1902.	By draft paid H. A. West		6 80
April 11, 1902.	By check paid franchise tax		10 00
April 25, 1902.	By draft paid H. A. West, stenographer's expenses		52 70
May 5, 1902.	By balance on hand		1,628 35
			$3,152 96

R. F. MILLER,
Treasurer.

On the motion of Dr. A. B. Gardner, the report was referred to the same committee as the Secretary's report.

PRESIDENT'S ANNUAL MESSAGE AND RECOMMENDATIONS.

The President read his annual message, which was as follows:

Mr. President and Gentlemen:

We are here this morning with the fruits of another years' work for inspection. Whatever of good we may have accomplished will become a part of our history. The errors we have made will serve as danger signals for ourselves and others in the future. A scientific, thoughtful body like this, must have done much for the good of mankind and the profession. In a twelve months, when our inventory is completed, no doubt we will be justly proud of the work. At our last meeting, your President was instructed to appoint a committee to make a report at this meeting on a revision of the Constitution. This, gentlemen, is one of the most important matters that will engage your attention at this session. The committee appointed was, in the judgment of your President, selected with special reference to their fitness for this work; the committee consists of Drs. J. T. Wilson, J. E. Gilcreest, R. F. Miller, S. C. Red and H. A. West. The committee, I understand, have their report ready, and at the proper time it will be submitted for consideration. I hope you will give every feature of that report your most earnest and painstaking consideration.

It will be necessary that the new Constitution conforms to that of the American Medical Association. The recommendation made by our worthy President last year, that this Association be divided into two bodies, one for purely scientific work, the other for administrative purposes, should, in my opinion, be carried out. I would most earnestly recommend that the most liberal terms of admission to membership, "consistent with good discipline," be encouraged. We would, as a people and a professional body, be much benefited if we could enlist every regular qualified physician in Texas in this work.

Since our last meeting, the Governor has appointed the Board of Medical Examiners for the State of Texas, selecting from the list furnished by this body at Galveston. He has given us a good Board. The Board has organized and got down to work. Already the fruits of its labors are being seen the powers of that Board are not as far reaching as we might desire, yet much good is coming from it as it is. Let us encourage and assist them in every way we can. It affords me pleasure to say that the medical profession of this State, in my opinion, from the information received from a large part of the State, is on a higher ground than ever before, the people are appreciating the work done by the doctor more today than ever before; this is all due to the faithful, conscientious work of the profession individually and collectively. The members of our Legislature and the Governor are anxious to hear us on all matters pertaining to public health.

After the Association had adjourned at Galveston last year, there came

from many members of the Association, letters urging a change in the place of meeting from El Paso to some more central point, giving as their reason for such change, in view of the fact that the question of a change in our organic law would come up for discussion at this meeting, and other vital questions would be raised, it would be all the more important that we should have a full attendance. The long distance to El Paso, the time required to make the trip, the extra expense it would incur, all seemed to suggest that we could not expect as full an attendance at El Paso as at some more central and accessible point.

After considering these requests, which to me seemed reasonable, I corresponded with the other officers of this Association, and came to the conclusion to submit the question of change of place of meeting to a vote; two hundred were in favor of a change, while twenty-four favored meeting at El Paso. Dallas having received a plurality of the votes cast, in fact, almost double any other city, it was determined to meet in Dallas. The Confederate reunion, however, was to meet in Dallas at the time, and believing that it would very materially interfere with our work, and that it would be impossible to get accommodation at that time, I changed the time of meeting from April 22nd to May 6th. This I believed to be to the interest of the Association.

Since we last met, death has invaded our ranks and claimed for its victims some of our best and noblest men. It becomes my sad duty to announce to you the death of

Dr. J. H. McDaniel, of Centerville,
Dr. J. H. Sears, Waco,
Dr. J. B. Massie, Houston,
Dr. R. H. Chilton, Dallas,
Dr. L. Ashton, Dallas,
Dr. W. W. Walker, Schulenberg,
Dr. G. W. Akard, Springtown.
Dr. A. D. Boggs, Marquez,
Dr. J. C. Mayfield, Galveston.

On the motion of Dr. A. B. Gardner, Bellville, the President's message and recommendations were referred to a committee consisting of Dr. A. B. Gardner, Bellville; Dr. J. T. Benbrook, Rockwall; and Dr. Walter Shropshire, Yoakum.

REVISION OF THE CONSTITUTION.

Dr. H. A. West, Galveston, said:

The Committee on Revision of the Constitution and By-Laws had a meeting this morning, and decided that two reports, one representing the

majority and the other the minority of this committee, should be presented to the general meeting, and that a resolution should afterwards be introduced referring them both to a special committee. We believe that if an attempt was made to discuss the subject in general session, much time would be wasted and no conclusion arrived at. Our idea is that the whole matter should be referred to a special representative committee, or provisional house of delegates, consisting of delegates from all the affiliated societies, together with the President of the Association, representatives from each congressional district and the Committee on Revision. The minority report, signed by Dr. Red and myself, has already been published, and I now propose that the report of the majority be read. After that the nomination of the committee will be proposed.

DR. J. T. WILSON, SHERMAN: I desire to state that the report sent out by the minority of this committee has been rather misleading. I am sorry to have to say so. The report was sent out by two members without the sanction of the other members, and, for that reason, it was thought best that the majority should submit a separate report. I should like to add that the committee met in Dallas in February, and after an entire day's work making concessions, reading recommendations from the American Medical Association, and generally discussing the subject, they succeeded in drafting a Constitution which is embodied in this report. Subsequently it appeared that two of the members thought that they could not approve of the report, and they sent out what is now known as the minority report. The following is the report first agreed upon. [The report as amended by the Provisional House of Delegates, appears elsewhere.]

DR. GARDNER: I move that a committe of five be appointed to consider these reports, and that it be instructed to report to this body on Thursday morning. I propose further that this matter be put down as a special order of business for that day. More members will then be present, and we will be in a better position to discuss the subject.

DR. SHROPSHIRE: I move an amendment, namely, that the subject matter of the report of the Committee on Revision, together with the minority report, be referred to a provisional house of delegates, composed of delegates from each affiliated society and a representative from each congressional district, the President of the Association, and members of the Committee on Revision. This is the biggest question that has ever come before the Association, and it will not be satisfactory to the boys at the forks of the creek to refer it to a committee of five. Such a committee might, no doubt, make a report that would be everything that could be desired, but a large committee, such as I have proposed, would certainly be more satisfactory, because of its representative character.

DR. WEST: I beg to second the amendment, and in doing so, I wish to reiterate and emphasize what Dr. Shropshire has said as to the importance

of this question and the necessity of having it considered by a thoroughly representative committee. The proposal of Dr. Gardner to refer the matter to a committee of five, and to have it submit its report here on Thursday, would be entirely unsatisfactory for this reason, that the balance of the session would probably be taken up with the discussion of this question. Now, the two reports are before you, one you have heard read and the other has been placed in your hands. The resolution of Dr. Shropshire carries with it a reference to a thoroughly representative body, and it is desirable that such a body should have an opportunity of calmly and carefully considered the whole matter. As Dr. Shropshire has said, this is the most important matter ever presented to the State Association, providing, as it does, for an entire change in our Constitution and by-laws, with the object of bringing them into harmony with the fundamental principles of reorganization, which has been recommended by the American Medical Association. It would be, in my opinion, a matter of extreme folly to have a matter of such magnitude referred to a committee of five with the inevitable result that the whole of our time in general session would subsequently be taken up with the discussion of the question.

DR. J. D. OSBORNE, CLEBURNE: I wish to offer another amendment. So far as I can see, the reports do not differ very materially, and I move that the whole matter be referred back to the Revision Committee in the hope that it will be able to come to some agreement. The committee as it stands is a good committee. They are acquainted with the subject and the needs of the Association. They can get together without delay and attend to the matter. If, on the other hand, we have to wait for the appointment of a provisional house of delegates, it will mean a great loss of time, and we will get deeper and deeper entangled. I, therefore, move that it be referred back to the Committee on Revision, with instructions to submit a further report.

DR. GARDNER: I accept that amendment; a committee of thirty-five or forty will never do anything.

DR. W. B. RUSS, SAN ANTONIO: If the Committee on Revision has so far failed to agree, I can not see what more we can expect from it. They differed on matters of extreme importance, and I do not see why we should expect them to agree now. I do not see any difficulty in getting a provisional house of delegates organized.

DR. WEST: In regard to the amendment I wish to say, that the Committee on Revision, at its meeting this morning, endeavored to come to some agreement, but entirely failed. It would be folly to refer the report back. As Dr. Russ has said, there is a fundamental and vital difference between the majority and the minority, and it is perfectly hopeless to expect any agreement could be reached, even if it sat from now to doomsday. The only way we saw out of the difficulty was to refer the whole

matter to a representative committee. There need be no difficulty or delay about getting such a committee together, or in securing speedy action. It seems to me this is the only satisfactory way of dealing with the matter. If we refer it to a small committee, then it comes back to this body for discussion, the result will be that the whole of our time will be taken up. Now, in reply to Dr. Wilson, that the report of Dr. Red and myself was misleading, and was sent out without the sanction of other members of the committee, I wish to say, once for all, that if anyone was misled, it was his own fault and not ours. The title on the cover was unauthorized, not only so, but was expressly forbidden. My letter, however, failed to reach the publisher in time to prevent its appearance. No one should have been deceived by that, for in the explanatory statement over my signature, it was explicitly mentioned that there would be two reports, one resulting from the meeting at Dallas, and the other from the Galveston meeting. The other members of the committee had stated that they could not agree to the changes Dr. Red and I would insist upon; there was really no occasion for the majority to come to the last meeting. They were invited, however, to do so. So far as the sanction of the majority is concerned as to the publication of our report, it was not requisite in our opinion. In fact, we know that Dr. Wilson objected, nevertheless believing that the difference between the two reports was fundamental and involved the very life and future welfare of the Association. We considered it not only our right, but bounden duty, to make this report, and we place it in the hands of every member of this Association, objections of other members of the committee, or anybody else, to the contrary notwithstanding. We have no apologies to offer. I move the amendment be tabled.

Motion seconded and carried.

DR. F. S. WHITE, Terrell: I move as another amendment that the chairman appoint seven representatives to act with the original committee. We do not want a large and unwieldy body to deal with this matter. We can get the sense of the Association much better by such a committee as I propose. I would suggest further that the committee be instructed to report tomorrow morning.

On the motion of Dr. West, this amendment was also laid upon the table.

Dr. E. M. Thomas, Georgetown: I move that the chairman appoint a man from each congressional district to form a committee to report on this matter.

The President: That was practically voted down just now.

Dr. Shropshire's original resolution was then put and carried.

DR. WEST: I would suggest that during the noon recess the delegations of the affiliated societies get together and select their representatives for this committee, and that the different congressional districts do the same, and that they be ready to report at the afternoon session.

The committee was subsequently nominated as follows:

Taylor Hudson, J. T. Wilson, J. E. Gilcreest, R. F. Miller, J. T. Field, M. M. Smith, J. C. Carlton, J. B. Titterington, J. M. Fort, Bacon Saunders, C. C. Gidney, S. R. Burroughs, H. A. Burroughs, F. S. White, J. D. Osborne, H. A. West, F. Paschal, S. T. Turner, H. Taylor, W. H. Neeley, J. T. Moore, H. W. Crouse, J. M. Frazier, W. B. Russ, S. Bowers, Walter Shropshire, S. C. Red, I. N. Suttle, W. A. Harper, H. K. Leake, C. W. Hodge, I. P. Gunby, J. M. Inge, S. T. Turner.

The President then appointed members to fill temporary vacancies upon the Judicial Council.

WELCOME TO VETERANS.

At the afternoon session Dr. F. E. Daniel asked a personal privilege. He desired to present to the Association two of the patriarchs of the profession,—veteran physicians and relics of the medical corps of the Confederacy. He said that Dr. Samuel Hollingsworth Stout, of Dallas, and Dr. Thomas C. Osborn, of Cleburne, both honorary members of this Association, had honored us with their presence this afternoon, and he desired to present them to the Association and extend to them the privileges of the floor. Permission being granted, Dr. Daniel introduced each of the gentlemen named, and with appropriate but brief remarks referred to their eminent positions in the profession and their distinguished services to the Lost Cause. Dr. Stout, now four score years of age, was the first, last, and only Medical Director of the Hospital Department of the Confederate States, his jurisdiction extending before the close of the war, from the Alleghenies to the Mississippi river. Dr. Osborn has just passed the four score and five milepost in the journey of life, and is, like Dr. Stout, still in possession of vigorous intellect, though time is beginning to weaken the physical man. Dr. Osborn will live forever in the grateful hearts of the

medical profession, at least, for the great discovery of the prevention and treatment of smallpox by the bichloride bath method,—a discovery second only to that of the immortal Jenner. In closing, Dr. Daniel paid a beautiful and deserved tribute to both gentlemen, not only as physicians, but as men, citizens, and Christian scholars.

Both gentlemen were greeted with prolonged applause, and briefly and feelingly acknowledged the compliment, Dr. Stout, who is still engaged in active practice, participating in the discussion of the subject then up—pneumonia—recounting his nearly sixty years' experience with the disease in the South.

Drs. Stout and Osborn briefly thanked the Association for the honor conferred on them.

SECOND DAY.—*Morning Session.*

The President, Dr. Taylor Hudson, in the chair.

REVISION OF THE CONSTITUTION AND BY-LAWS.

Dr. M. M. Smith, Austin, said: "As secretary of the committee to which was referred the majority and minority reports of the Committee on the Revision of the Constitution and By-Laws, I beg to report that the whole subject was taken into consideration by this committee and engaged our attention at two lengthy sittings. The conclusions we arrived at were as follows:

CONSTITUTION AND BY-LAWS

OF THE

STATE MEDICAL ASSOCIATION OF TEXAS.

CONSTITUTION.

ARTICLE I.

SECTION 1. The name of this Association shall be "The State Medical Association of Texas."

SEC. 2. This body is constituted for the following purposes, viz.: the more thorough organization of the medical profession in the State of Texas (a) for the cultivation and advancement of medical science; (b) the promotion of public health and of medical education; (c) improvement in the management of public institutions for the sick and infirm; (d) of securing the enactment and enforcement of medical laws; and (e) the maintenance of professional brotherhood between its members and those of other States and Territories of the United States, and of foreign countries.

ARTICLE II.

MEMBERSHIP.

SECTION 1. The membership of this Association shall consist of active, associate and honorary members.

SEC. 2. Active members shall embrace the membership of all affiliated district and county societies that have complied with the By-Laws as hereinafter provided, and physicians of other States and Territories who are members of local societies in affiliation with the American Medical Association who make application in due form and comply with the By-Laws as hereinafter provided. Representative gentlemen not doctors of medicine, working in the allied sciences, may become associate members by a unanimous vote of any section. Eminent men at home or abroad are eligible for honorary membership. The list of members is to be classified in accordance with this provision.

SEC. 3. *Application and Election.* Application for active membership shall be made in the prescribed form to the district or county societies in the district in which the applicant lives.

SEC. 4. Honorary members, not exceeding two in one year, may be elected by the House of Delegates when nominated by three delegates.

SEC. 5. *Privileges.* Active members shall have all the rights and privileges conferred by their respective district and county societies. They shall be eligible to any office in the gift of the Asso-

ciation, shall be entitled to attend all the meetings, and shall receive all the protection, benefits and support conferred by it. Those not living in Texas shall be barred from voting and holding office. Associate members shall have all the rights of membership except that of voting and holding office. They shall not be assessed for dues. Honorary members shall have the privilege only of participating in the scientific work of the Association. They shall receive the Transactions without payment of dues.

SEC. 6. *Removal.* When a member in good standing removes to another district or county, he may within twelve months transfer his name to the roll of members in the district or county of his new residence with the consent of said society, upon presenting a duly authenticated card.

SEC. 7. *Resignations.* Resignation involves forfeiture of all right or title to the property or privileges of the Association or its subordinate branches. Resignations must be given in writing and will not be accepted unless all dues are paid. No member shall be allowed to resign while under charges which may lead to expulsion.

ARTICLE III.

ETHICS AND DISCIPLINE.

SECTION 1. *Ethics.* The Code of Ethics of the American Medical Association shall be the code of this body and of its district and county branches.

SEC. 2. *Discipline.* The adjudication of all questions of ethics and of administration of discipline shall be vested in the subordinate divisions; but members under sentence of expulsion shall have the right of appeal to the House of Delegates of the State Medical Association of Texas through its judicial council, whose judgment shall be final.

SEC. 3. *Dropped Members.* Members dropped from the roll of subordinate branches as hereinafter provided shall be reinstated after the payment of all back dues and assessments.

ARTICLE IV.

OFFICERS.

SECTION 1. The officers of this Association shall be one President, three Vice-Presidents, a Secretary, Treasurer, and five Trustees.

SEC. 2. No officer shall be elected to office who is not present at the meeting at which the election occurs.

ARTICLE V.

BOARD OF TRUSTEES.

SECTION 1. There shall be elected by the House of Delegates a Board of Trustees consisting of five members. At the first election two shall serve for one year, two for two years, and two for three years, after which the terms of all shall be for three years, two being elected each year, excepting every third year one shall be elected. The Trustees shall have control of the finances of the Association, and publish the Transactions of the Association in volume form as is now done by this Association.

BY-LAWS.

ARTICLE I.

SECTION 1. *Organization.* The active members resident of Texas shall be organized for the present into the following district and county societies, viz.:

DISTRICT ASSOCIATIONS.

1. Brazos Valley Medical Association.
2. South Texas Medical Association.
3. Western Texas Medical Association.
4. Corsicana District Medical Association.
5. Central Texas Medical Association.
6. Austin District Medical Association.

7. Pan Handle Medical Association.
8. East Texas Medico-Chirurgical Society.
9. North Texas Medical Association.

COUNTY SOCIETIES.

1. Johnson County Medical Society.
2. Hill County Medical Society.
3. Washington County Medical Society.
4. Brigg's Medical Society of Ellis County.
5. Austin Academy of Medicine.
6. Dallas Medical and Surgical Society.
7. El Paso County Medical Society.
8. Grayson County Medical Society.
9. Denton County Medical Society.
10. Practitioners' Society of Dallas.
11. Lamar County Medical Society.
12. Cass County Medical Society.
13. Harrison County Medical Society.

And all other societies which have affiliated with the Association at this meeting.

Membership in the foregoing societies and of other district and county societies which may hereafter be organized under the auspices of the State Medical Association, may become members of the State Association through the proper channel as hereinafter provided.

SEC. 2. *Territorial Limits.* The territorial limits of the above named district associations and of others as they may be organized from time to time, are subject to definition by the House of Delegates with the consent of such associations.

SEC. 3. *The House of Delegates.* The House of Delegates shall be composed as follows: (1) the President, three Vice-Presidents, Secretary and Treasurer of the Association and the Board of Trustees *ex officio;* (2) delegates from district associations, viz.: one delegate for each fifty members or fraction over twenty-five, who have complied with the By-Laws of the State Medical Association.

District associations numbering less than fifty members shall be entitled to one delegate.

SEC. 4. *Officers.* The President, Vice-President, Secretary and Treasurer of the Association shall be *ex officio* the officers of the House of Delegates.

SEC. 5. *Judicial Council.* The Judicial Council shall be composed of nine members, three of whom shall be chosen annually by the House of Delegates and shall serve for three years. All questions of a personal character, including complaints, protests and credentials shall be referred immediately after presentation to the Judicial Council without discussion. The said Council shall organize by choosing a president and secretary, shall keep a permanent record of its proceedings and shall report its findings to the House of Delegates at the earliest practical moment.

SEC. 6. *Committees.* There shall be four standing committees, as follows: on Arrangements, on Legislation, on Public Health and Medical Charities, on Nominations. The first three committees named shall consist of five members each and be appointed by the President. The Committee on Nominations shall consist of one delegate from each district association, to be elected by the respective delegations, none of whom shall be eligible to office during their terms.

ARTICLE II.

FUNCTIONS OF THE HOUSE OF DELEGATES.

SECTION 1. The House of Delegates shall be the legislative and executive body of the Association, having control of the election of officers, and all of its business affairs.

SEC. 2. The House of Delegates shall convene annually at the place of the Association meeting, holding its first session on the afternoon of the first day and at such other times as the business of the Association may require, provided its sessions do not conflict with those of the general body.

SEC. 3. *Quorum.* Fifteen members shall constitute a quorum.

SEC. 4. *Eligibility of Members to Office.* Members of the

House of Delegates shall be barred from holding office in the Association.

SEC. 5. *Board of Appeals.* The Judicial Council shall constitute a Board of Appeals, and shall adjudicate all appeals from subordinate societies on questions of ethics and discipline.

SEC. 6. *Order of Business.* The order of business at the annual meetings of the House of Delegates shall be as follows:

1. Call to order.
2. Roll call.
3. President's message on needs of the Association.
4. Report of the Secretary.
5. Report of the Treasurer.
6. Report of the standing committees.
7. Report of special committees.
8. Unfinished business.
9. New business.
10. Report of the Nominating Committee.
11. Election of officers.
12. Reading minutes and action thereon.

ARTICLE III.

DUTIES OF OFFICERS.

SECTION 1. *President.* The President shall preside at all meetings of the Association and of the House of Delegates; he shall appoint all committees not otherwise provided for; he shall report the condition and needs of the Association at the annual meetings of the House of Delegates; he shall deliver an address upon some scientific subject at such time as may be designated by the Committee on Arrangements, and shall fill all vacancies in the offices of the Association that may occur in the interim.

SEC. 2. *Vice-Presidents.* The Vice-Presidents in regular order at the request or absence of the President shall temporarily perform the duties of the President. In the event of death, disability or resignation of the President, the First Vice-President shall act in his place until after the next annual election, and if not practicable

for him to do so, the Second Vice-President shall act, and so on down the line. The Vice-Presidents, with the President, shall constitute a committee for the purpose of making special assignments for the discussion of scientific subjects at the annual meetings of the Association.

SEC. 3. *Secretary.* The Secretary shall make and preserve accurate minutes of the meetings of the Association and of the House of Delegates. He shall conduct its correspondence, shall have charge of and preserve all books, papers and property belonging to the archives of the Association, keep a correct register of the members, dates of admission and their postoffice addresses. He shall keep a record in his office of all legal practitioners in the State as shown by data furnished him by the secretaries of the several district and county societies, and shall furnish the secretary of the American Medical Association with a copy of such list during the year 1903 and each year thereafter with necessary corrections. He shall attend all meetings of committees when required, with such documents as may be needed for reference, and report such unfinished business requiring action as may appear upon his books or that may come to his knowledge. As soon after the annual meeting as practical he shall deliver to the Board of Trustees or its agent all such records of proceedings, reports, addresses, papers and other documents as may have been ordered for publication either in the general sessions, House of Delegates or sections. He may nominate a stenographer who shall act as his assistant in the performance of such secretarial and recording duties as may be required during the annual meetings and of the meetings of the district and county societies as far as practicable. The compensation of the stenographer shall be decided by the Board of Trustees. The Secretary shall make an annual report to the Association and House of Delegates. He shall receive for his services as Secretary such salary as may be fixed by the Board of Trustees.

SEC. 4. *Treasurer.* The Treasurer shall collect and disburse the funds of the Association under the direction of the Board of Trustees. He shall keep the accounts of the Association and pay all orders drawn on him by the chairman of the Board, signed by

the President and countersigned by the Secretary of the Association. It shall be his duty to notify all members in arrears after each annual meeting. He shall draw on all those whose dues are not paid within six months from said meeting. He shall make an annual report of the finances to the Association and to the House of Delegates, and give bond as may be required by the latter body. He shall receive for his services as Treasurer such salary as may be decided upon by the Board of Trustees.

DUTIES OF THE BOARD OF TRUSTEES.

SEC. 5. It shall be the duty of the Board of Trustees to manage under the House of Delegates the finances of the Association, and shall superintend the publication of the Transactions. It shall have power to omit the publication of any paper or document, or parts thereof, which it may deem unsuitable. It shall pay the Treasurer all moneys belonging to the Association that may come into its possession, may pay actual traveling and hotel expenses of officers or committeemen when it is necessary for them to leave home on Association business *ad interim*, shall audit and authenticate the accounts of the Secretary and Treasurer, and shall make a report to the Association at each annual meeting.

DUTIES OF COMMITTEES.

SEC. 6. Chairmen of standing committees shall make full reports of the work done by their respective committees during the year at the annual meeting of the House of Delegates.

SEC. 7. The various committees shall hold as many meetings during the year as may be necessary. A majority of the members shall constitute a quorum. They shall make and present accurate minutes of all proceedings.

ARTICLE IV.

MEETINGS OF THE ASSOCIATION.

SECTION 1. *Annual Meeting.* The Association shall hold an annual meeting at such time and place as may be determined by the House of Delegates, through its Committee on Nominations;

provided, that in case an emergency involving the interests of the Association should arise in the interim, the President, Vice-Presidents, Secretary and Treasurer, with the Board of Trustees, shall have power to change the place and date of meeting, and shall select such place and date as may appear to be most suitable.

SEC. 2. *Special Meetings.* Special meetings may be called by the President upon the written request of twenty-five members.

SEC. 3. The general sessions of the Association shall occupy not exceeding two and one-half hours of the first morning session, and not exceeding one hour for each other morning session when held, the remaining morning hours, afternoons and first two evenings shall be devoted to section work.

SEC. 4. *Order of Business.* The order of business at the annual meetings of the Association shall be as follows:

1. Call to order.
2. Roll call.
3. Report of the chairman of the Committee on Arrangements.
4. Special addresses.
5. Report from the House of Delegates.
6. Reports of standing committees.
7. Reports of special committees.
8. Reading and discussion of papers.
9. President's address.
10. Installation of officers.
11. Adjournment.

SEC. 5. The Nominating Committee shall report and the newly elected officers shall be installed on the fourth day of the meeting.

SEC. 6. The proceedings of the Association shall be governed by such parliamentary usage as is prescribed in Roberts' Rules of Order.

ARTICLE V.

DISTRICT BRANCHES.

SECTION 1. The territorial limits of the district branches shall be subject to definition and revision by the House of Delegates. The House of Delegates shall have authority to organize additional

district and county societies from time to time as may be found necessary and to employ an agent for that purpose.

SEC. 2. *Mode of Organization.* The district branches shall be composed of the several counties which are embraced in the district with such other societies and members as may desire to join and of members living in counties having temporarily no organization. When there is a county society in the county in which the applicant lives, he shall become a member of his district association through the county society, and of the State Association through the district association.

SEC. 3. The President is expected to make himself familiar with the work of the county societies within his jurisdiction and to report on their condition at the annual meetings of the State Association.

SEC. 4. The Secretary shall perform the usual duties pertaining to that office, and shall make an annual report to the House of Delegates, giving a full and correct list of members in his jurisdiction, with such other data as may be required by the general Secretary.

SEC. 5. The Treasurer shall collect and disburse the funds of the Association as may be prescribed by its By-Laws.

SEC. 6. *Annual Meeting.* Each district association shall so arrange the date of its annual meeting as to appoint its members of the House of Delegates prior to the annual meeting of that body.

SEC. 7. *Constitution and By-Laws.* Each district association shall make its own constitution and by-laws, in conformity with the Constitution and By-Laws of the State Medical Association of Texas, subject to approval by the House of Delegates.

ARTICLE VI.

COUNTY SOCIETIES.

SECTION 1. All such county societies as shall have accepted the invitation of the State Medical Association of Texas to become its subordinate societies, and all county societies which may hereafter be organized under its auspices, shall constitute the affiliated county societies in connection with the State Medical Association of Texas.

SEC. 2. *Formation.* When the members of any district association in any county are ten (10) in number they shall organize themselves into a county society.

SEC. 3. The officers of each county society shall be a president, vice-president, secretary and treasurer, or the last two may be combined in one office.

SEC. 4. *Secretary.* The secretary of each county society shall make an annual report to the secretary of his district association, containing the minutes of each meeting, a list of the members and officers, which shall be embodied in the report of the secretary of the district association to the general Secretary. The secretary of each county society shall furnish the Secretary of this Association, not later than July 1st, 1903, with a complete list of all the legal practitioners residing within the county, giving residence, time and place of graduation, date of registration, and such other data as may be voluntarily added, and thereafter on the first day of each January, with a list of all other changes among the legal practitioners of the county since the last report, giving names, changes in address, removals, and deaths.

SEC. 5. *Treasurer.* The treasurer shall collect and disburse the funds of the society under order of the president and secretary.

SEC. 6. *Constitution and By-Laws.* Each county shall make its own constitution and by-laws, which shall be in conformity with the constitution and by-laws of the district association and of the State Medical Association of Texas, and subject to approval by the House of Delegates.

ARTICLE VII.

ELIGIBILITY.

SECTION 1. All physicians in good standing, residing in the State of Texas, who adopt and conform to the Code of Ethics of the American Medical Association, and who are graduates of reputable medical colleges, or those who have received certificates from the Board of Medical Examiners for the State of Texas, shall be eligible for active membership in the State Medical Association of Texas, except those of the negro race; provided, that only regular

graduates of reputable medical colleges are eligible to membership in the House of Delegates. Physicians of eminence residing within the United States and foreign countries shall be eligible for honorary membership. Representative men, not physicians, engaged in other scientific work shall be eligible to associate membership.

SEC. 2. *Application and Election.* Application for active membership shall be made in a prescribed form to the district medical association of the district in which the applicant resides, who must also be a member of his county society if such an organization exists. The House of Delegates may elect members at its annual meetings when the application is approved by the president and secretary of his district association and then recommended by the Judicial Council.

SEC. 3. Upon nomination of two members of the House of Delegates and approval of the Judicial Council, physicians living in other States and Territories may be elected active members by the House of Delegates. Honorary members not to exceed two in one year, may be elected by the House of Delegates at its annual session after nomination by three delegates in writing. Associate members may be elected by the House of Delegates after unanimous nomination by one of the sections.

ARTICLE VIII.

DUES.

SECTION 1. *Annual Dues.* The annual dues of active members shall be three dollars ($3). Honorary members shall be exempt from the payment of all dues.

SEC. 2. *Non-Payment of Dues.* All dues shall be payable at or before the annual meeting for the ensuing year to the Treasurer of the Association. If the dues of any member remain unpaid after refusal to honor the Treasurer's draft, his name may be dropped from the roll.

ARTICLE IX.

SECTION 1. *Scientific Work.* The scientific work of the Association shall be embraced in the following sections, viz.:

1. General Medicine, Therapeutics and Dietetics.
2. Gynecology, Obstetrics and Diseases of Children.
3. Surgery, Genito-Urinary Diseases and Dermatology.
4. Diseases of the Eye, Ear, Nose and Throat.
5. Mental and Nervous Diseases, Medical Jurisprudence, State Medicine and Public Hygiene.
6. Pathology and Bacteriology.
7. Chemistry, Materia Medica and Pharmacy.

SEC. 2. No paper read before the Association shall occupy more than twenty minutes. Discussions shall be limited to five minutes unless unanimous consent be given by the section for longer time. The author of the paper shall have the right to occupy ten minutes in closing the discussion. No member shall speak twice on the same subject without permission.

ARTICLE X.

SECTION 1. The foregoing Constitution and By-Laws shall not be altered or amended except under the following conditions: The proposed amendment shall be offered in writing, signed by three members of the House of Delegates at a regular meeting of that body; it shall lie over until the next regular meeting and be adopted by two-thirds of all the votes cast.

NOTE BY THE EDITOR.—The only material difference between the original copy and the foregoing consists in striking out the last clause of Article V, Section 1, relative to publication of the proceedings in journal form, and controlling same by the Board of Trustees.

(Signed) J. T. WILSON,
R. F. MILLER,
J. E. GILCREEST.

DR. SHROPSHIRE: I move that both reports be received, printed and distributed to every member of this Association, and also to the members of district societies, regardless of whether they are affiliated with this Association or not, and that these societies be requested to send to the next meeting of the Association a delegate to form one of the house of delegates which will have power to dispose of the whole matter.

Dr. West seconded the motion.

DR. J. M. FORT: I move as an amendment that we adopt the report we have just heard.

DR. SHROPSHIRE: I oppose the adoption of this amendment on this ground. The report of the majority proposed that our house of delegates, the body which transacts all of our business and makes our rules, should include delegates from county and district societies, with no obligation on members of these societies to be members of this Association. In other words, a delegate from a county society will be able to come to the State Medical Association and legislate for the whole body and yet represent men outside of the Association. Such a state of matters would be perfectly ridiculous and anomalous. I would, therefore, urge that the whole matter be postponed for another year, and that in the meantime copies of both plans be sent to all the members, so that they may have a full opportunity of familiarizing themselves with the subject. We will then be in a position to act finally in a manner that will be satisfactory to everyone, and lay the foundations for making the Association a compact and formidable body.

DR. J. J. ROBERTS. Hillsboro: I am in favor of Dr. Shropshire's motion. We all recognize that legislation is necessary, but the question has been brought upon us so recently, that members have hardly had time to know what they are doing. It is only right that both of these reports should be printed in pamphlet form and scattered broadcast, so that at the next meeting we will be in a position to act intelligently on the subject.

DR. M. L. GRAVES, San Antonio: I also wish to support the motion to publish these two reports and distribute them. Until my arrival at the Association yesterday morning, I did not know that any majority and minority reports had been contemplated. The only report I knew anything about was the minority report, which had been published. Then the majority report was read, and that was the first that most of us knew about it. Now, we are asked to change completely the organic law of this Association within twenty-four hours of hearing that report and without having a full knowledge of the merits of the points at issue. The members of the Association, it is clear, are not ready for a full and final discussion and determination of this question. Delay can hurt nobody. The objection offered by Dr. Shropshire to the adoption of the majority report is insuperable, for to have a Constitution dictated to us by gentlemen who are not members of the Association and who represent bodies that are not members of the Association, would certainly be absurd. According to the majority report, the house of delegates would constitute the whole thing. It would absolutely control the whole policy of the Association. So far as I can see, no member would have any power of appeal to the General Association. The Association, with its four or five hundred members,

would have no power to revise the acts of the house of delegates, nor would the house of delegates have any power to refer questions for the decision of the Association. Therefore, a few men might dominate the affairs of the Association. On all these grounds, I say it is too early to adopt the Constitution. Publish the reports in your respective societies, get to understand what they mean, and come to the next meeting prepared to vote intelligently on the whole question.

DR. J. T. SESSIONS, Rockdale: I wish to say a few words on behalf of the county and district medical societies. I am in favor of having time to consider this proposal to change our organic law. Before we commit our societies, we should see that they, as well as members that are present here today, should have time to discuss the rival proposals. Give us time for consideration, and arrange for the appointment of delegates with proper instructions how to vote. Do not ask us to bind our societies just now. I am heartily in favor of at least one year's delay.

DR. WEST: I wish to put myself and the minority of this Committee on Revision right in regard to one point. It was explicitly stated in the preliminary statement of the report of this minority that two reports would be presented here, and that the said minority report consisted simply of the result of the deliberations of Dr. Red and myself. In my opinion, we as a minority had not only a right to make this report, but would have failed in our duty if we had neglected to do so under the circumstances, for there was a fundamental and vital difference on which we could not agree with the majority. This is the first time I ever heard the right of a minority to express its opinion questioned. At the meeting yesterday every effort was made by us to get a unanimous report, but we found that we could not agree. Reference has been made to the work of the committee at the meeting held in Dallas.

A MEMBER: This personal explanation of Dr. West's, I would submit, Mr. Chairman, is not gemane to the matter before the house.

The chairman ruled that Dr. West was in order.

DR. WEST: I wish to point out clearly and plainly before you vote what is the difference between the majority and the minority, because I do not believe it is thoroughly understood. It involves the adoption or rejection of the fundamental principles put forward as essential to reorganization by the American Medical Association. According to the minority report, membership in one of the affiliated societies constitutes membership in the State Association without further payment of dues. Whenever a society accepts the invitation of the Association and becomes affiliated with it, its members become members of the Association: in other words, a man pays his dues in the county society and thereby becomes a member not only of it,

but also of the State Association. Does he do so under the majority report? Not at all. Under the plan suggested by the majority, delegates from bodies whose members are not members of the Association would have power to come here and control its affairs. This was why my colleague and myself found it impossible to accept the majority report. The difference lies right here, it has to be carefully read to be appreciated (the speaker read article 2, of the Constitution, as proposed by the majority.) In other words, according to the majority report, every society in affiliation with the Association will be divided into two classes, those who are members of the Association and those who are not. An apple of discord will thus be thrown into every county and district society in the State. Moreover, we would be placed in the anomalous and ridiculous position of having the election of our officers, regulation of our finances, in fact, all of our business, political, ethical, and every other kind, placed in the hands of men having no authority to represent the bodies from which they come. The distinctive difference between the two reports, which is fundamental and vital, as I have said, consists in the fact that in the report of Dr. Red and myself, membership in a component society carries with it membership in the State Association; delegates from such societies are truly representatives, and authorized to conduct the business of the Association, while in Dr. Wilson's, or the majority report, such is not the case. The matter is one of extreme importance; it will set us back ten years if we adopt the majority report. The whole matter has been laid before Dr. Simmons, Secretary of the American Medical Association, and he has condemned the scheme of the majority in toto, and he has advised that, if possible, we should get the Association to delay action rather than adopt it. The minority report has been placed in Dr. Simmons' hands and he declares it an ideal one, and says that if we adopt it, he is sure we will have the State thoroughly organized within five years. He adds that the State of Texas is giving considerable anxiety to the Association.

DR. SMITH: Has Dr. West the letter from Dr. Simmons in reference to the majority report?

DR. WEST: I am sorry I have not got it with me. It has been contended here and in the committee that the members of the profession in Texas cannot be driven into the organization. No driving is necessary. I am not basing this statement on my inner consciousness. The very prospect of organization on the lines proposed by the minority has stimulated medical organization all over the State as never before. More county and district societies have been oragnized within the past six months than ever before in the history of the Association; almost every Association in the State has paid its dues and is here by its representatives today. Nearly half of the affiliated societies have taken action, and many of them unanimously. The West Texas Association unanimously voted to adopt the plan

of reorganization proposed by the minority. Talk about gentlemen having to be driven, no driving is necessary; all they want is a fair chance and they will come in. As Dr. Simmons has said, it will be but a very short time before the State is organized if the minority report is adopted. Therefore, I am in favor of the resolution of Dr. Shropshire, and sincerely trust it will be carried.

DR. CANTRELL: Can we constitutionally adopt the majority report now?

THE PRESIDENT: I understand so.

DR. M. M. SMITH: I wanted to hear some more worthy gentleman speak on behalf of the majority report, but as no one else has risen, I desire to say a few words. A committee was appointed by this Association a long while ago to present a plan of reorganization in accordance with the recommendation of the American Medical Association. The committee met last February and prepared a report. Later two members of the committee decided that they wanted to make a minority report. I believe the other members of the committee were invited to meet with them in Galveston, but this they could not do. The minority report was sent to the medical journals; these journals did not know that there was a majority report; they gave publicity to it, and it was also published in pamphlet form. When we assembled here, we found that there was a majority report. The committee met yesterday and agreed to disagree. The matter was, therefore, referred to a provisional house of delegates—a thoroughly representative body. They took both reports into consideration. They sat from two o'clock in the afternoon until near seven in the evening, and then after supper until eleven. They took up the Constitution section by section; they asked the majority and minority to state their views and the matter was argued out.

DR. SHROPSHIRE: Did the minority argue it after the first two sections.

DR. SMITH: No, after that, as I understood it, the minority report was withdrawn; then the report which the Association has just heard was adopted by a majority. I think it is highly important that we take some action now in regard to reorganization. Dr. West says he has already heard from some affiliated societies who have accepted the Constitution as recommended by the minority, but they knew nothing about the two reports. The Association is now ready to act, the American Medical Association has requested it to act. Other States have been organized, and we have enough affiliated societies to make a beginning. If we postpone it another year and fuss and fight over it, we will never make a beginning. Let us do something this year, and next year we can come prepared to make any amendment that is necessary. I do not believe in hasty action in anything, but there are times when we must make a beginning, and this is one of them.

DR. W. B. RUSS, San Antonio: I am as much in favor of reorganization as Dr. Smith, but I cannot accept the plan proposed by the majority. I do not believe that it means reorganization. On the contrary, I believe it means disorganization, and disorganization that we would be tied to for some time, because it would require a two-thirds majority to make any change. The house of delegates was not unanimous on the subject any more than the Association is, and, moreover, the plan proposed is in direct conflict with that suggested by the American Medical Association. I would not dare to go back to my Association and say that I had not raised my voice in protest against the plan now proposed. Eight out of ten of the members, I believe, are not prepared to vote on the question, because they have not studied it sufficiently; I doubt very much if some of the committee could explain it themselves. It is absolutely necessary to wait one year, and, if necessary, ten, rather than to take action under such circumstances.

DR. BACON SAUNDERS, Fort Worth: I would like to endorse what the Secretary of this provisional committee has said. There is another thing I would like to point out. While we may have confidence in the immutable wisdom of the reorganization committee of the American Medical Association, its plan has not been tried in one iota. The Association itself does not know that it can live up to it. Why, therefore, should we not wait to see if it is practical. If we accept the invitation to organize, our judgment is just as good as that of Dr. Simmons and other members of the American Medical Association, at least until their plan has been tried. It may not work at all. There is no question of the majority and minority report. The question is whether you will accept the report of the provisional house of delegates. I say we had better adopt it. We do not require to have the plan of the American Medical Association pushed down our throats *nolens volens*, it is better to try a little persuasion. If their plan is better than ours, we will know it by next year. Very likely, however, the American Medical Association will modify its plan. It is not as unchangeable as the laws of the Medes and Persians, and as it has never been tried, it is better that we should wait until we see how it is going to work. I give full credit to Dr. West and others for good intentions in this matter, but we will never do anything if we simply go on discussing and indulging in all sorts of other cusses. These people will come up next year more determined than ever. Nothing, I believe, can ever change the opinion of some of the members. The differences will exist to the crack of doom. That is the spirit we are up against, and with which we are expected to compromise. It is not the spirit as it seems to me in which to enter on the work of reorganization.

DR. MCREYNOLDS: I rise to speak on this subject with a great deal of trepidation, because I feel that I have not given the subject the amount

of attention that it deserves, and in saying this, I believe I am voicing the opinion of the majority of the members of the Association as to their own position. I feel that nothing can be said in too great praise of the members of the special committee who were appointed to revise the Constitution and by-laws. I feel that we have not any more patriotic or devoted members. They have all done a great deal for the Texas Medical Association. They are in hearty sympathy with whatever is best for the general body. Nothing too good again could be said of the provisional house of delegates. I will say, however, that far too few societies were represented on that body. For example the Dallas Medical and Surgical Society was not represented, and the same is true of very many important societies. Now, if you will permit me very modestly—and I hate to suggest anything to those who have conferred so long on this matter—I would say that there is no great necessity for immediate action. If it were a cause of extreme urgency, we might devise means for working together. But the question is a radical or surgical operation. It must either succeed or fail. It is much easier to do things than to undo them. It is easier to wait until others have tried the plan proposed than to try it ourselves and fail. Dr. Saunders seems to think we might as well try the experiment. I think it would be better to allow other States that have given more attention to the matter to try it first. Our societies are so widely separated that they cannot easily get together. Therefore, I believe it would be better for us individually, and be more likely to insure the salvation of the Association if we were to leave the experimentation to those who have had better opportunities to exchange views on the subject. I take a somewhat more optimistic view of the situation than Dr. Saunders. He thinks the more we discuss the matter, the further we will be apart. On the contrary, I believe that a wise man frequently changes his mind, and that only a fool never does. I believe the majority of the Association belong to the former class, and that they will be prepared to change their opinions in favor of what is shown to be the better plan. Therefore, I heartily support the resolution for delay.

DR. RED: I rise to a point of personal privilege. It has been circulated around here that something like a snap judgment has been taken upon the committee's report by Dr. West and me. I wish consequently to submit to you just what actually occurred, as I saw it. When the committee met in Dallas, during February, Dr. Gilcreest had to leave before it had completed its labors. The four remaining members were completely at variance as to some vital parts of the report. They, however, effected something of a compromise, which, after further thought, was found also unsatisfactory to two of the members (Drs. West and Red). Dr. West asked the members of the committee to another conference at Galveston. To this meeting Dr. West and I only came. As a result of our labors, you

have what is now known as the minority report, and when it was published it bore on its face that it was the work of part of the committee. Further, it was not known until yesterday morning whether our report or Dr. Wilson's report would be the majority report, since Dr. Gilcreest had not till then expressed which one he favored.

DR. F. E. DANIEL, Austin: It is with reluctance that I rise to speak on this subject. It has been thoroughly discussed in committee, but I wish to raise a point of order. It seems to me that this discussion is altogether irregular. The question before us is the adoption or rejection of the report of the Provisional House of Delegates. We have got away from that to the merits of the original question. We have got into the circumlocution office, and are now engaged apparently in trying to discover how not to do it. We have got into a tangle, and it cannot be disentangled in this way. The entire subject of revision was finally and wisely referred to a large representative body. That body has considered the subject in all its phases. It has carefully considered it, and after twelve hours of arduous and intelligent labor, it has brought in its report. It has been objected that the members of the Association have not had an opportunity of considering the matter. But the usual course with such business has been pursued. In Congress matters are thus referred to appropriate committees, and when the committees make their reports, these reports are accepted or rejected as the case may be. What is everybody's business is nobody's business. Ten men can transact business when two hundred can never come to any conclusion. What was the use of appointing that large representative committee if its work was to go for nothing? The committee has brought out of chaos a good plan. I believe that it is the best plan of organization possible. Great reforms are necessarily of slow growth. I think in the scheme before us, we have gone as far as it is possible for us to go at present, and that it would be for the best interests of the Association, as well as of the public health, for us to adopt it. Meanwhile, I repeat, I think we are entirely off the track in this discussion. The question is the adoption or rejection of the report.

DR. HOLMAN TAYLOR, Marshall: I am not going to discuss the merits of the matter, but merely rise to say that the minority in the Provisional House of Delegates was not such a minority after all. The report was only carried by a majority of three. So it will be seen that the minority was a very respectable one. Now, I say let the deadly parallel lines be drawn, so that all can have an opportunity of judging of the merits of the respective plans. In other words, let both reports be submitted to all interested, and let them come to their own conclusions.

Dr. Shropshire, at the request of some of the members, repeated the terms of his motion.

DR. C. C. GIDNEY, Granger: The committee of yesterday had only one report, there was no minority report.

DR. M. L. GRAVES, San Antonio: I beg to give notice, that in the event of the report of the majority being adopted, I will move an amendment to provide for an appeal from the House of Delegates.

DR. SAUNDERS: As a previous speaker has said, there was no minority report in yesterday's proceedings.

DR. WEST: I have a minority report.

DR. J. T. MOORE, Galveston: As to what Dr. Daniel has said about Congress either adopting or rejecting reports of committees, I would like to observe that it is also customary for Congress to postpone action. That is what is proposed here, and, under the circumstances, I cannot but think it is the best course to pursue. I heartily agree with Dr. McReynolds that there is no great urgency in this matter. Reorganization, under the method proposed, would not advance the interests of the Association. All prospect of proper reorganization was killed in committee by a vote of fourteen to eleven, and the result of adopting the report would leave us just where we were when we started. In connection with this scheme of reorganization, there was another important matter that fell to the ground, namely, the publication of a journal. There was besides a plan for the systematic education and organization of the profession by showing them the advantages of supporting the Association, forming county societies, etc. This important feature was also killed. Dr. Wilson, for whom I have the greatest regard, knows too well that the very essence of this organization scheme consisted in what was to be done through the journal and the agents of whom I have spoken. He himself must regret that the publication of the journal and the appointment of the agents must be postponed in consequence of the action of the committee yesterday. After a year more devoted to the consideration of this matter, we will be able to come here and say what we want.

DR. GARDNER: As we are considering the Constitution, I should like to call attention to the fact that our present Constitution contains a proviso that no amendment to it shall be adopted, unless due notice of it has been given and it is carried by a two-thirds vote. I object to strife as much as any one, and am anxious to get into accord with the American Medical Association, but we must be guided by our rules.

DR. SMITH: If Dr. Gardner is correct in his interpretation of the Constitution, it is all the more reason why we should act now, and bring the matter up again next year. If we do not take action now, we will have to wait two years.

The following is the report as offered by the minority of the committee:

CONSTITUTION.

ARTICLE I.

Name of.

The name of this organization shall be the STATE MEDICAL ASSOCIATION OF TEXAS.

ARTICLE II.

Purposes.

The purposes of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of Texas, and to unite with similar associations in other States to form the American Medical Association, with a view to the advancement of medical science and art; to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians; to the guarding and fostering of their material interests, and to the enlightenment and direction of public opinion in regard to the great problems of State medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.

Component Societies.

The State Medical Association of Texas shall be organized into fifteen district associations, embracing contiguous counties as hereinafter defined. The district associations shall be organized into county soceties embracing existing societies as they may accept the invitation of the State Association to become its subordinate branches, and such other county societies as the same may be organized. The component societies shall be chartered by the State Association through its House of Delegates.

ARTICLE IV.

Composition.

SECTION 1. This Association shall consist of delegates and active and associate members.

SEC. 2. *Active Members.*—The active members shall be the members of the component societies.

SEC. 3. *Associate Members.*—The associate members shall consist of members of other scientific bodies who shall make application and shall be elected in due form by the House of Delegates, and who shall be eligible only to read and discuss scientific papers.

SEC. 4. *Delegates.*—Delegates shall be members who are elected in accordance with this Constitution and By-Laws to represent component district societies and shall be regular graduates, active practitioners and conformers to the American Medical Association code of ethics.

SEC. 5. *Guests.*—Distinguished physicians or members of other scientific bodies not residents of this State may become guests of the Association during any annual session upon invitation of the Association or its council, and shall be accorded the privilege of participating in the scientific work.

ARTICLE V.

House of Delegates.

The House of Delegates shall be the business body of the Association, and shall consist of:

(1) Delegates elected by the component district societies.

(2) (Ex-officio) the President, Vice-Presidents, Secretary, Treasurer, Board of Trustees and Councilors.

ARTICLE VI.

Meetings.

SECTION 1. *Annual Meeting.*—The Association shall hold an annual meeting at such time and place as may be determined by the House of Delegates, which shall be open to all registered mem-

bers, delegates and guests; provided, that in case an emergency involving the interests of the Association shall arise in the interim, the President, Vice-Presidents, Secretary and Treasurer, with the Board of Trustees and Councilors, shall have power to change the place and date of meeting, and shall select such place and date as may appear to be most suitable.

ARTICLE VII.

Officers.

SECTION 1. The officers of the Association shall be a President, three Vice-Presidents, Secretary, Treasurer, Board of five Trustees and Board of Councilors, the latter to be elected by district component associations.

SEC. 2. The President and Vice-Presidents shall be elected annually.

Trustees shall be elected for three years. (See Article XIV.) These officers shall serve until their successors are elected and installed.

SEC. 3. The officers of this Association shall be elected on the morning of the last day of the annual session by a majority secret ballot of the House of Delegates, but no elective delegates shall be eligible to any office named in the preceding section, and no ex-officio delegates shall have a vote in electing them. No person shall be elected to such office who is not in attendance upon the annual session upon which said election occurs.

ARTICLE VIII.

Funds and Expenses.

SECTION 1. Funds for meeting the expenses of the Association shall be arranged for by the House of Delegates, by an equal per capita assessment upon the component societies of three dollars per member, also voluntary contributions and the profit of publication.

SEC. 2. Funds may be appropriated by the House of Delegates through the Board of Trustees to defray the expenses of the annual session, for publication, to pay traveling expenses of delegates and

committeemen, publication, and such other purposes as are necessary to promote the interests of the Association and profession.

ARTICLE IX.

Referendum.

The general meeting of the Association may by two-thirds vote order a referendum upon any question pending before the House of Delegates, and that body may by a similar vote submit any question to the General Assembly for final action, a majority vote determining the question.

ARTICLE X.

Seal.

This Association shall have a common seal, with power to change the same.

ARTICLE XI.

Amendments.

The House of Delegates may amend any articles of this Constitution by two-thirds vote of the delegates registered at that annual session, provided that such amendment shall have been presented in open meeting at the previous annual session and that it shall have been sent officially to each component society at least two months before the session at which final action is to be taken.

ARTICLE XII.

SECTION 1. Members of the component societies shall be privileged to attend all meetings and to take part in the proceedings; provided, that they have no right to vote or participate in discussions before the House of Delegates. They shall receive the Transactions or Journal without charge, and shall receive the protections, benefits and support conferred by the State Association.

SEC. 2. The name of a physician upon the certified roster of a component society which has paid its annual dues shall be prima facia evidence of his right to register at the annual sessions.

SEC. 3. No physician who is under sentence of suspension or

expulsion, or whose name has been dropped from the roll of members, shall be entitled to any of the rights or privileges of this body.

SEC. 4. Resignation must be given in writing to the secretary of the component society and shall not be accepted until all dues are paid.

SEC. 5. No member shall be allowed to resign when under charges which may lead to expulsion.

SEC. 6. When a member in good standing removes to another district he shall transfer his name to the roll of members in the district of his new residence by presenting a duly authenticated card within a year from time of such removal.

ARTICLE XIII.

Ethics and Discipline.

SECTION 1. The Code of Ethics of the American Medical Association shall be the code of this body.

SEC. 2. The adjudication of all questions of ethics and administration of discipline shall be vested in the component and district societies, through their constituted authorities, provided there shall be the right of appeal to the Board of Councilors, whose decision shall be final.

ARTICLE XIV.

Board of Trustees.

There shall be elected by the House of Delegates a Board of Trustees, consisting of five members; at the first election two shall be elected to serve one year, two for two years and one for three years, after which the terms of all shall be for three years, two being elected each year, excepting every third year, when one shall be elected. It is not intended to prohibit the re-election of any member. This Board shall have control, under the House of Delegates, of the finances of the Association, and shall establish a Journal to be called the "Journal of the State Medical Association of Texas," in which the proceedings of the Association and its branches shall be published. This Journal shall be first class in every respect, only legitimate advertisements shall be accepted; it

shall be, for the present, monthly; a copy shall be sent to every member, to the President and Secretary of the American Medical Association, an exchange list established; the price to subscribers outside of the Association shall be three dollars per annum.

ARTICLE XV.

Organization.

SECTION 1. The active membership shall be organized into the following censorial districts embracing the counties as hereinafter described and exhibited upon accompanying chart:

No. 1. El Paso District, composed of all counties west of the Pecos river, together with Loving, Winkler and Ward counties.

No. 2. Big Springs District, embracing the following counties: Crane, Ector, Midland, Glasscock, Howard, Mitchell, Scurry, Kent, Nolan, Taylor, Jones, Haskell, Knox, King, Dickens, Crosby, Lubbock, Hockley, Cochran, Yoakum, Terry, Lynn, Garza, Gaines, Dawson, Borden, Andrews, Martin, Upton.

No. 3. Panhandle District, embracing the tier of counties extending east, including Bailey, Lamb, Hale, Floyd, Motley, Cottle, Foard, Hardeman, and all counties north and west of the above tier.

No. 4. San Angelo District, embracing the following counties: Crockett, Sutton, Schleicher, Irion, Tom Green, Sterling, Coke, Runnels, Coleman, Concho, McCulloch, Menard, Kimble and Brown.

No. 5. San Antonio, or Western, District, embracing the following counties: Edwards, Kerr, Bandera, Gillespie, Kendall, Bexar, Guadalupe, Wilson, Atascosa, Frio, Uvalde, Zavala, Kinney, Medina, Maverick, Dimmit, La Salle and Karnes.

No. 6. Corpus Christi, or Southwest Texas, District, embracing the following counties: Webb, Encinal, Duval, McMullen, Live Oak, Bee, Goliad, Refugio, Aransas, San Patricio, Nueces, Cameron, Hidalgo, Starr and Zapata.

No. 7. Austin District, embracing the following counties: Caldwell, Bastrop, Lee, Williamson, Burnet, Travis, Hays, Blanco, Llano, Mason and San Saba.

No. 8. DeWitt District, embracing the following counties: Gonzales, DeWitt, Victoria, Calhoun, Jackson, Lavaca, Fayette, Colorado, Wharton and Matagorda.

No. 9. South Texas District, embracing the following counties: Brazoria, Fort Bend, Austin, Waller, Montgomery, Harris, Galveston, Chambers and Washington.

No. 10. Southeast Texas District, embracing the following counties: Liberty, San Jacinto, Polk, Tyler, Hardin, Jefferson, Orange, Jasper, Newton, Angelina, Nacogdoches, Shelby, San Augustine and Sabine.

No. 11. Brazos Valley District, embracing the following counties: Brazos, Burleson, Milam, Robertson, Leon, Madison, Grimes, Walker and Houston.

No. 12. Central Texas District, embracing the following counties: Bell, Lampasas, Mills, Comanche, Hamilton, Coryell, Falls, McLennan, Bosque, Hill, Limestone, Freestone and Navarro.

No. 13. Northwest Texas District, embracing the following counties: Callahan, Shackelford, Throckmorton, Baylor, Wilbarger, Wichita, Archer, Young, Stephens, Eastland, Palo Pinto, Jack and Clay.

No. 14. North Texas District, embracing the following counties: Erath, Hood, Parker, Wise, Montague, Cooke, Denton, Tarrant, Johnson, Ellis, Dallas, Collins, Grayson, Fannin, Hunt, Rockwall, Kaufman, Van Zandt, Rains, Hopkins, Delta and Lamar.

No. 15. Northeast District, embracing the following counties: Cherokee, Rusk, Anderson, Panola, Harrison, Gregg, Smith, Wood, Upshur, Marion, Cass, Morris, Titus, Franklin, Red River and Boyd.

BY-LAWS.

ARTICLE I.

SECTION 1. The House of Delegates, in addition to its ex-officio members as defined in Constitution, Article V, shall be composed of delegates elected by the component district associations upon the following basis, viz.: One elective delegate for every one hundred

members, and fraction over fifty. Provided, that associations numbering less than 100 members shall be entitled to one in addition to its delegate ex-officio.

SEC. 2. This body constituting the legislative and business branch of the Association shall elect all officers and committees not otherwise provided for, and conduct through its committees the business affairs committed to it.

SEC. 3. It shall meet annually at the time and place of the Association meeting; holding its session at such time as will not conflict with the general sessions. Elective delegates shall hold office for two years or until their successors are elected and qualified.

SEC. 4. *Officers.*—The President, Vice-Presidents, Secretary and Treasurer of the Association shall be ex-officio the officers of the House of Delegates.

SEC. 5. *The Board of Councilors* shall consist of fifteen members, one to be elected by each component district association. They shall serve for three years, but be subject to removal for cause by the House of Delegates. In the event of death or resignation of a member the president of the association in which the vacancy occurs shall have the authority to appoint a successor until the next annual election. To this Board all questions of personal character, including complaints, protests, appeals, ethics, discipline, and credentials, shall be referred immediately after presentation without discussion. The Board shall elect a chairman and secretary, and keep a permanent record of its proceedings and report the same to the House of Delegates before its adjournment.

SEC. 6. Each councilor shall be organizer, peace-maker and chairman of the Board of Censors for his district. He shall visit the various counties as far as practicable at least once a year for the purpose of organizing new county societies, and for improving and stimulating the zeal of members. He shall make annual report of the condition of the profession in each county in his district to the annual session of the House of Delegates. The necessary traveling expenses incurred by such councilor in the line of duties herein imposed may be allowed by the House of Delegates upon a

properly itemized statement. This is not intended to be construed as including attendance upon annual sessions of the Association.

ARTICLE II.

Quorum of the House of Delegates.

SECTION 1. Fifteen members will constitute a quorum.

SEC. 2. The order of business at the annual meetings of the House of Delegates shall be as follows:

1. Call to order.
2. Roll call.
3. President's message on Needs of the Association.
4. Secretary's report.
5. Treasurer's report.
6. Report of Board of Trustees.
7. Report of Councilors.
8. Report of standing committees.
9. Report of special committees.
10. Unfinished business.
11. New business.
12. Report of Nominating Committee.
13. Election of officers.
14. Reading of minutes and action thereon.

ARTICLE III.

Duties of Officers.

SECTION 1. *President.*—The President shall preside at all general meetings of the Association and of the House of Delegates. He shall appoint committees not otherwise provided for; he shall report the condition and needs of the Association at the annual session of the House of Delegates. He shall deliver an address upon some scientific subject at such time as may be designated by the Committee on Arrangements, and shall fill all vacancies in the offices of the Association which may occur in the interim.

SEC. 2. *Vice-Presidents.*—The Vice-Presidents in regular order, at the request or in the absence of the President, shall temporarily

perform his duties. In the event of death, disability, or resignation of the President, the First Vice-President shall act in his place until after the next annual election. If for any reason the First Vice-President cannot act the second shall do so, and so on in succession. The Vice-Presidents with the President and Secretary shall constitute a committee for the purpose of making special assignments for the discussion of scientific subjects at the annual meetings of the Association, and appointment of Section officers.

SEC. 3. *Secretary.*—The Secretary shall make and preserve accurate minutes of the meeting of the Association, and of the House of Delegates. He shall conduct its correspondence, shall have charge of and preserve all books, papers and property belonging to the Association; keep a correct register of the names of members, dates of admission, and their postoffice addresses. He shall keep a record in his office so far as may be practicable of all legal practitioners within the State, as shown by data furnished him by the secretaries of the several district and county societies; and shall furnish the Secretary of the American Medical Association with a copy of such lists during the year 1903, and each year thereafter with necessary corrections. He shall attend all meetings of committees when required with such documents as may be needed for reference, and report such unfinished business requiring action as may appear upon his books or that may come to his knowledge. As soon after the annual meeting as practicable he shall deliver to the Board of Trustees, or its agent, all such records of proceedings, reports, addresses, papers, and other documents as may have been ordered for publication, either in the general sessions, House of Delegates or Sections. He may nominate a stenographer who shall act as his assistant in the performance of such secretarial and recording duties as may be required during the annual meetings and of the meetings of the district and county societies as far as practicable. The compensation of a stenographer shall be decided by the Board of Trustees. The Secretary shall make an annual report to the Association and House of Delegates. He shall receive for his services such salary as may be fixed by the Board of Trustees. He shall be allowed to draw on the Treasurer for the expenses of his office.

SEC. 4. *Treasurer.*—The Treasurer shall give bond in such amount as may be required by the House of Delegates. He shall collect all funds due the Association from the treasurers of the component societies at least two months before the annual session. He shall, under direction of the Board of Trustees, have the care and management of the fiscal affairs of the Association. He shall keep its accounts and pay all orders drawn on him by the Chairman of the Board of Trustees, signed by the President and countersigned by the Secretary. He shall make an annual report of the finances to the House of Delegates. He shall receive for his services such salary as may be decided upon by the Board of Trustees, subject to approval of the House of Delegates.

SEC. 5. *Duties of Board of Trustees.*—It shall be the duty of this Board, under the House of Delegates, to manage the finances of the Association, business matters connected with the Journal, superintend the publication of the proceedings, nominate an editor of Journal who shall be subject to removal for cause, prescribe his duties, determine the amount of his salary and his term of office. It shall have power to reject any paper deemed unsuitable for publication. It shall transfer all moneys belonging to the Association in its possession to the Treasurer. (Art. VIII, Section 2, Constitution.) It may pay for actual traveling and hotel expenses of officers and committeemen when it is necessary for them to leave home on Association business ad interim. It may pay the actual traveling and hotel expenses of the Association delegates to the American Medical Association and meeting of Committee on National Legislation, upon presentation of a properly itemized account of same. It shall audit the accounts of Secretary and Treasurer, and make report to House of Delegates at each annual meeting.

ARTICLE IV.

Standing Committees.

SECTION 1. There shall be a Committee on Scientific Work, Public Policy and Legislation, Publication, Nomination, Arrangements, and such other committees as may in the opinion of the House of Delegates be necessary.

Such committees shall be elected by the House of Delegates unless otherwise provided.

SEC. 2. The Committee on Scientific Work shall consist of the President, Vice-President and Secretary, as hereinbefore specified.

SEC. 3. The Committee on Public Policy and Legislation shall consist of fifteen members, representing each district society in the State, who shall take into consideration such legislation as may be for the good of the people and medical profession, and urge the enactment of all laws recommended by the House of Delegates.

SEC. 4. The Committee on Publication shall consist of the Board of Trustees as hereinbefore mentioned.

SEC. 5. The Committee on Nomination shall consist of a member from each district society, elected by the House of Delegates, and who shall not be eligible to office, who shall nominate all officers not hereinbefore provided for, in duplicate, and report same to the House of Delegates on the morning of the last day of annual meeting.

SEC. 6. The Committee on Arrangements shall consist of the component societies in the district in which the annual meeting is to be held, which shall by committee of its own selection provide suitable accommodation for the Association, House of Delegates and committees. Its chairman shall report an outline of arrangements and furnish the same to the Secretary or editor for publication.

SEC. 7. The various committees shall hold as many meetings during the year as may be necessary, and a majority of the members shall constitute a quorum. They shall make minutes of their proceedings and report same to the House of Delegates.

ARTICLE V.

Meetings of the Association.

SECTION 1. *Annual Meeting.*—The Association shall hold an annual meeting at such time and place as may be determined by the House of Delegates, through its Committee on Nominations. The sessions shall be open to all registered members, delegates and guests. In the event of an emergency arising in the interim involv-

ing the interests of the Association, the President, Vice-President, Secretary, Treasurer, Councilors and Board of Trustees shall have authority to make such change in the place and date of meeting as they deem best.

SEC. 2. *Special Meetings.*—Special meetings may be called by the President upon written request of twenty members.

SEC. 3. The general session of the Association shall not occupy more than two and a half hours of the first morning session, and not exceeding one hour for any other morning session. The remaining morning, afternoon, and first two evening hours shall be devoted to Section work.

SEC. 4. *Quorum.*—Twenty-five members shall constitute a quorum.

SEC. 5. *Order of Business.*—The order of business at the annual meeting shall be as follows: Call to order; roll call; report of chairman of the Committee on Arrangements; special addresses; report from House of Delegates; reports of standing committees; reports of special committees; reading and discussion of papers; President's address; installation of officers; adjournment.

SEC. 6. Roberts's Rules of Order shall govern parliamentary questions.

DISTRICT BRANCH ASSOCIATIONS.

ARTICLE VI.

Mode of Organization.

SECTION 1. The district branches shall be composed of the several county societies as hereinbefore specified, and of members living in counties having temporarily no county organization. Counties having ten or more resident physicians are to be organized into societies as soon as possible by the District Councilor. The latter is to make himself familiar with the work of the county societies within his district and to report upon the same at the annual meetings of the House of Delegates.

SEC. 2. District branches shall receive charters from the State

Association, and enact constitutions in conformity with that of the State body.

SEC. 3. Compenent district associations shall be organized upon the same general plan as the State Association, viz.: They are to be divided into (*a*) House of Delegates to be composed of delegates from component county societies upon a basis of one delegate for every fifty members and major fraction thereof; provided, that every county shall be entitled to one delegate. The officers of the district association shall be ex-officio the officers of the House of Delegates.

SEC. 4. Delegates shall be graduates of medicine, legal and active practitioners, and conformers to the Code of Ethics of A. M. A.

SEC. 5. The House of Delegates is to perform the same general functions as that of the similar body of the State Association, viz.: nomination and election of officers; attend to all business affairs and settlement of all questions of ethics and discipline.

SEC. 6. (*b*) The scientific body shall embrace the membership of all component county societies.

SEC. 7. *Officers.*—The officers of the district branches shall be a president, vice-president, secretary, treasurer and councilor. The president and the vice-president shall perform the usual duties as pertain to such office and as may be further defined in the by-laws of each association.

SEC. 8. The secretaries of the district branches shall perform the usual duties pertaining to that office, and shall make an annual report to the House of Delegates, giving a complete list of members in his district, with such other data as may be required by the general Secretary.

SEC. 9. The treasurer shall collect and disburse the funds collected by him, making payment to the general Treasurer as herein provided.

SEC. 10. *Annual Meetings.*—Each district shall so arrange the date of its meetings as to appoint its representatives to the House of Delegates prior to the meeting of the same.

SEC. 11. *Councilors.*—(See Sections 6 and 7, Article I, By-Laws.)

SEC. 12. *Constitution and By-Laws.*—Each district association shall make its own Constitution and By-Laws, the same to be in conformity with those of the State Association, and subject to approval by the House of Delegates.

SEC. 13. All papers worthy of publication, minutes and discussions of the House of Delegates and scientific bodies of component societies becomes the property of the State Association, and shall be delivered as soon as practicable to the general Secretary for publication in the State Journal.

SEC. 14. *Dues.*—The annual dues of members of each component society shall be $3.00; provided, that any society may levy such additional assessments as may be required to meet its own expenses. All members failing to pay dues by April 1st of each year shall stand suspended until reinstated by payment. The treasurer of each component society shall forward the amount collected upon the per capita assessment, with a roster of all officers, members, delegates, and list of non-affiliated physicians in the county, to the general Treasurer at least thirty days in advance of the annual session.

SEC. 15. *Charter.*—The Association shall issue a charter, duly signed by the President and Secretary, to each district association hereinbefore described as soon as the same are ready for organization. Charters are to be placed with the Councilors (to be elected primarily by the provisional House of Delegates). The Councilors shall proceed to organize their respective districts as rapidly as possible, as follows: He shall extend an invitation to all county societies already operative to assemble by their representatives at some central place, and proceed to organize the district associations. Those now existing may form the nucleui of the component bodies of this Association.

SEC. 16. *Changes of Counties from One District to Another.*—If the majority of the physicians in a county can show cause for exchange into an adjoining district, the same may be made with the consent of the respective districts, due record of which shall be made and reported to the general Secretary and Treasurer.

ARTICLE VII.

County Societies.

SECTION 1. All county societies now in affiliation with the State Association, or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, upon application to the House of Delegates, receive a charter from and become a component part of this Association.

SEC. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

SEC. 3. Charters shall be issued only upon approval of the House of Delegates, and shall be signed by the President and Secretary of this Association. The House of Delegates shall have authority to revoke the charter of any component county society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

SEC. 4. Each county shall judge of the qualifications of its own members, but as such societies are the portals to this Association and to the American Medical Association, every reputable and legally registered physician who is practicing, or who will agree to practice, non-sectarian medicine shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and an opportunity shall be given to every such physician in the county to become a member.

SEC. 5. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made, with the aid of the Councilor for the district if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

SEC. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in sus-

pending or expelling him, shall have the right of appeal to the Council and to the House of Delegates.

SEC. 7. In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a Board and as individual councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

SEC. 8. When a member in good standing in a component society moves to another county in the State, his name, upon request, shall be transferred without costs to the roster of the county society into which jurisdiction he moves.

SEC. 9. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

SEC. 10. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

SEC. 11. Physicians residing in counties containing too few to be organized into a society may join the district association by making direct application thereto.

SEC. 12. Scientific work of the Association shall be embraced in the following Sections:

1. General Medicine, Therapeutics, and Dietetics.
2. Gynecology, Obstetrics, and Diseases of Children.
3. Surgery, Genito-Urinary Diseases, and Dermatology.
4. Diseases of the Eye, Ear, Nose, and Throat.
5. Mental and Nervous Diseases, Medical Jurisprudence.
6. State Medicine and Public Hygiene.
7. Pathology and Bacteriology.
8. Chemistry, Materia Medica, and Pharmacy.

SEC. 13. No paper read before the Association shall occupy more than twenty minutes. Discussions shall be limited to five

minutes unless unanimous consent be given by the Section for longer time. The author of the paper shall have the right to occupy ten minutes in closing the discussion. No member shall speak twice on the same subject without permission.

[The undersigned wish hereby to express their appreciation of the kind and valuable assistance rendered by Dr. Walter Shropshire in preparation of the foregoing. There is no man in the State who has given the subject more careful thought than Dr. Shropshire. As a simple matter of propriety and justice we wish to place the fact upon record.]

(Signed) H. A. WEST,
S. C. RED.

The amendment was then withdrawn, and Dr. Shropshire's motion put to the meeting and adopted, with but one dissenting vote.

DR. J. D. OSBORNE, Cleburne: I was appointed delegate to the Committee on National Legislation of the American Medical Association. I was not able to go to Washington, where the meetings were held, but I kept myself in touch with the committee, and now submit this report:

Dr. Jas. D. Osborne, Cleburne, Texas.

DEAR DOCTOR: The Committee of the American Medical Association on National Legislation hereby requests you, as the delegate from your State society, to meet this committee in annual conference at the Arlington Hotel, Washington, D. C., April 10-11, 1902, at 9 a. m. In the event of your inability to attend, please forward this notice promptly to your alternate. You should arrange early with Mr. Bennett, proprietor of the Arlington, for your accommodations. Street cars will take you direct from both depots to the hotel, obviating extortionate cab fare. Delegates are requested to present to the conference any matter, local or national, of interest to their State society. The following will be submitted by this committee for your consideration, viz:

Reports of committees of the Second Annual Conference:

1. Committee on "Uniform Legislation on Basis of Uniform Medical Education." Drs. Emil Amberg, Dudley S. Reynolds, John B. Roberts.

2. Committee on "State Medical Organization." Drs. C. R. Shinault, W. P. Goff, L. B. Tuckerman, H. N. Bracken, Charles E. Quimby.

3. Committee on Special Congressional Bills, last session; S. 4171 Quarantine Bill; H. R. 13,423, Codification Postal Laws: Dr. L. B. Tuckerman.

4. Committee on Reorganization Bill: Dr. G. M. Sternberg.

5. National Committee *ad interim*. Annual report. Committee on National Legislation: Drs. L. E. Johnson, Wm. H. Welch, W. L. Rodman.

NEW BUSINESS.

6. Official action of conference of State Health Officers at Washington, D. C., March 12-13, 1902, and their recommendations to Congress, and the third annual conference, in connection with pending national health bills, viz.: Perkins Bill, S. 2162, to increase the efficiency and change the name of the United States Marine Hospital; Hepburn H. R. 7189, duplicate of Perkins Bill; Spooner Bill, S. 2417, relating to quarantine and public health; Ray Bill, H. R. 10,595, to establish a board of public health and for other purposes.

7. Bills and Acts: Gallinger Bill, S. 189, for the further prevention of cruelty to animals in the District of Columbia; Nelson Bill, S. 569 (now an act of Senate with report 82), to establish the department of commerce and labor; Hay Bill, H. R. 1952, to define the duties of the Medical Department of the army of the U. S.; Kern, 7650, to re-establish the army canteen; Proctor Bill, S. 2172, to provide for the payment of medical expenses of sick officers and enlisted men of the army while absent from duty with leave or furlough.

8. Communication from Dr. John J. Riley, U. S. Army, Manila, Philipine Islands, with proposed amendment to Sec. 18, of Act 4300, approved Feb. 2, 1901, bearing the endorsement of the Legislative Committee of the Medical Officers of the U. S. Army at Manila.

9. Reports of Delegates (State Societies).

10. Miscellaneous.

Very truly yours,

H. L. E. JOHNSON, M. D.,

Chairman Committee on National Legislation.

DR. WEST: I would like to have the authority of the Association to ask our Senators and Representatives to support the bills that have been reported on favorably by the committee referred to. If authorized to act for the Association I will attend to it promptly.

The desired authority was granted.

GUESTS OF THE ASSOCIATION.

On the motion of Dr. West, the courtesies of the Association were extended to Dr. C. E. D. Lord, Galveston, who was present as the representative of the United States Marine Hospital Service, and

Dr. James P. Tuttle, New York, and Dr. Emory Lanphear, special guests of the Association.

INVITATIONS FROM GALVESTON AND SAN ANTONIO.

Dr. West read the following telegram:

GALVESTON, TEXAS, May 7, 1902.

President of the State Medical Association, Dallas, Texas:

Galveston, through the Galveston Business League, extends to your Association a cordial invitation to hold your next meeting within her gates. Our auditorium and the committees of this organization will be put at your disposal to make your meeting a success.

GUY M. BRYAN, President.

W. A. GARDNER, Secretary.

On motion of Dr. Taylor Hudson, of Belton, President of the Association, a vote of thanks was extended to the Galveston Business League and the citizens of Galveston. The telegram was referred to the Nominating Committee.

Later in the day Dr. West read the following two telegrams:

SAN ANTONIO, TEXAS, May 7, 1902.

President State Medical Association, Dallas, Texas:

Our city would appreciate an indorsement by your body of our invitation to the American Medical Association to meet here next year.

MARSHALL HICKS, Mayor.

SAN ANTONIO, TEXAS, May 6, 1902.

Dr. Frank Paschal, care Dr. H. A. West, Secretary State Medical Association, Dallas, Texas:

Don't fail to impress upon the State Medical Association the fact that San Antonio is looking with interest to the time that it shall have the pleasure of entertaining the State medical fraternity in convention here.

MARSHALL HICKS, Mayor.

At the afternoon session, Dr. J. T. Wilson informed the Association that Governor Sayers was in the city, and moved that a deputation be appointed to wait upon him and invite him to visit the meeting. The motion was agreed to, and Drs. Wilson and Hudson were deputed to call on the Governor. Shortly afterwards they returned with the chief magistrate of the State, who was conducted to a seat upon the platform amid applause.

Dr. Wilson, in introducing the distinguished visitor, said: "In Governor Sayers we have a man who is broad and liberal enough to take in the whole political situation, not only of Texas, but of the entire United States. He can also include the sciences and all the other interests of the State in his sympathies. In particular he is a friend of medical science and medical education. He has done more for medicine and more for the charitable institutions of the State than any other man. His message was the cause of the enactment of the law by which the medical profession in the State is now governed. I beg to introduce the Hon. Joseph D. Sayers, our distinguished Governor."

Governor Sayers, who was received with renewed cheers, said:

It always makes me nervous when I have to appear before a body of gentlemen who by common consent are regarded as experts in the avocations of their life. I am, indeed, obliged to my friend, Dr. Wilson, for his very complimentary allusions to myself, but I feel that they are not altogether deserved. If I had not had his assistance and the assistance of other members of the medical profession in the State, the message to which he refers would never have been enacted into law. While I am not a physician, yet I am the son of a physician, who, until he was past seventy-five years of age, gave his entire life to the practice of his profession, into which he graduated from the University of Pennsylvania; and, therefore, from observation and experience I know what the life of an honest, true, faithful and competent physician is. It is one of labor and of responsibility, and of kindly charities, which he dispenses without their becoming known, as a rule, to the world. That kind of a physician is the man who never lets his left hand know what his right hand doeth, and who is always ready to give to the poor and deserving, to the widow and orphan, a fair share of his services without charge. This I know. But I want to talk to you very briefly this afternoon because, for one reason, I am quite tired. I made a speech to the preachers and missionaries a short time ago, and I am hardly prepared to talk to the doctors now. But I want to say that when I became Governor and had occasion to examine the statutes in regard to the practice of medicine, I became satisfied that there was urgent necessity for a great reform, and as I traveled through the country and met with gentlemen in private conversation, I received additional information, from which I learned that all over the State there were men practicing the profession who were entirely unworthy to be regarded as physicians. I might make the same remark in regard to the profession of the law. The truth, in my opinion, is that the State of

Texas has been too lax in regard to both these professions. Afterwards, upon consultation with Dr. Wilson and others, I requested him to prepare a measure which, in the judgment of the profession, would be calculated to remedy the evil, at least to a certain extent, and told him that I would accept the bill as given me without criticism or discussion, and that if the Legislature could be induced to pass it, I would approve it. This bill, I believe, was passed without amendment. Now, in my judgment, speaking from the standpoint of a layman, and of course subject to correction, I would say that there is a necessity, a strong necessity, for another measure. As you well know, the Health Department is under the control of a single man. Of course all through the bill organizing the Health Department there are references to duties which are imposed upon the Governor in connection with the State Health Officer, and after all, in more important matters the Governor himself is responsible for whatever is done. Now, there ought to be a thorough organization of the Health Department, or rather the Health Department, instead of being confined principally to duties of a general character at Austin, ought to be able, through boards regularly appointed under authority of law, to ascertain the conditions existing in every county and town and village, and every community, if necessary, in the State. The State officer of health ought to be in a position to communicate directly with these boards, and from them obtain information as to the condition of the people in these places. Now, there is no law which provides for the appointment of such boards, or prescribing the duties of such boards when they exist. There is no law which imposes a responsibility upon county officers or upon city or town officers in their relations with the State Health Officer. The kind of legislation which, in my judgment, we ought to have, in the first place, ought not to be too cumbersome. If you have a cumbersome measure, that is, a measure which authorizes the appointment of too many boards, and of boards with too many members; or if you provide complicated duties for such boards, you are apt to make the measure so cumbersome that a great deal of friction will arise, and the law will never be executed. I have had occasion to talk with gentlemen from other States, members of the medical profession, and they have explained to me the difficulties under which the State Health Officer and his subordinates labor. Now, I want to say another thing, and I know you will not agree with me, but I am going to give you my experience and the result of my observation. There has been a great deal of criticism in this State in regard to the establishment of quarantine lines. Now, that criticism has resulted from a want of a thorough knowledge of all the circumstances of each case. In the relations that existed—I speak of the term during which I have been Governor—between the Health Department of Texas and the Health Department of Louisiana we found we could not always rely with entire confidence on the reports from Louisiana, and, furthermore, we found that our railroad

system, instead of observing agreements that had been reached between them and the Health Department in regard to the transportation of certain kinds of traffic were apt to violate it. Therefore, in the interest of the people of Texas we were required to establish a quarantine when apparently to those unacquainted with all the facts there was no necessity for it. But last year and during the present year we succeeded in having such an understanding with the railroad companies, reduced to a written agreement, that we were able to be more lax in regard to quarantine regulations and at the same time preserve the health of the people. Texas, it is to be remembered, is a very large State, and there are many points of entrance into the State. We found that if quarantine was established between Texas and Louisiana it might be observed, say, by the Southern Pacific passing through Beaumont, while forbidden goods might be forwarded over the Texas & Pacific by way of Shreveport or by way of Vicksburg and Little Rock. There is scarcely a physician who is familiar with the State Health Department but understands the awkward and embarrassing position we were placed in by the failure of the railroad companies to keep their agreement and by our inability to get accurate information from Louisiana. No matter who is Governor, no matter who is State Health Officer, no matter whether the Legislature and the next Governor, in their wisdom, may or may not see proper to establish a board of health which shall organize quarantine, you will find that in spite of everything friction will arise, difficulties will occur, and steps will have to be taken which may seem unnecessary, but are absolutely justified by the circumstances. The State Health Officer cannot go into print and set out all the facts calling for such action as he is compelled to take, and neither can the Governor. They have been compelled in the past to submit to criticisms founded not on the facts, but on the want of thorough information as to the conditions, and they will be compelled to do so in the future. I make these statements not in criticism of any one, but in order that you may understand and appreciate the trouble and difficulties that surround the Health Department. You must bear in mind this further fact, that the United States government has a health department under the control of the surgeon general of the Marine Hospital Service, and in some of our Southern States we have no health officer invested with any substantial power. Therefore, the surgeon general reaches out to secure all the jurisdiction he can. Our relations with the surgeon general have been very pleasant. I regard Dr. Wyman not only as a most excellent physician, but also as a courteous gentleman, and he has always shown himself willing and anxious whenever and wherever he could to co-operate with us, and never has he failed to give us a helping hand when it was within his power. I am glad, as I have already said, to have this opportunity of appearing before you and making these explanations, and I thank you for the courtesy extended to me. I would only like further to urge

the physicians of this State to be exceedingly careful as to the steps they take in reference to the organization of boards of health throughout the State and providing such regulations as may be necessary for them to perform their duties. Bear in mind that if you make the machine too cumbersome or too expensive it will fail to be of any benefit to the State. What you ought to aim at is simplicity, economy and a direct and easy connection between the local health officers and boards and the State Health Officer or department at Austin. When you take up this matter you can discuss it among yourselves, and it may appear very easy, but when you sit down to prepare a law on the subject you will find it exceedingly difficult. No man is or could be more anxious than I that we should have a system by which we would secure to the people of this State immunity from disease without and a repression of disease that may arise within the limits of the State. A man may lose his property by fire or storm, or by bad management, and he may recover it. He may rebuild his fortunes. But when a man loses his health or his life it cannot be restored. Nowhere does a more important or sacred duty devolve on any government, whether State, county or municipal, than that of taking care of the lives and health of the people. You give me a man that is not too advanced in years. If he is strong and healthy, in this country he is not a poor man in the sense in which poverty is understood elsewhere, but, on the other hand, let a man have as much wealth as a Vanderbilt or a Rothschild can accumulate, and if he is too sick to enjoy or use it he is a poor man. (To illustrate this part of his speech the Governor told a story in which he was directly interested, but which he desired should not be reported in full out of respect to the other person involved, a milionaire member of the United States Senate. The substance of it was that the Governor and the Senator happened to foregather in the restaurant below the Senate chamber, and while the Senator toyed with a bowl of bread and milk the Governor ordered a lunch which included all the substantial luxuries on the bill of fare. "Good heavens, Governor," observed the Senator, "you are not going to eat all that?" "Am I not?" was the reply of the Governor, who had previously explained that he was unusually hungry; "you just wait until it comes, and you will see." Then followed a conversation about the value of a good appetite and digestive apparatus in which the Governor said to the Senator, "Look here, Senator, you are generally computed to be worth about fifteen millions of dollars and I am a comparatively poor man, but I would not exchange stomachs with you even if you threw in all your fifteen millions." The Senator reluctantly concurred that the Governor had the best of the situation, and a few months afterwards came news of the Senator's death.) The point I want to emphasize is this (continued the Governor), that no higher duty rests on any government than the protection of the life and health of the citizens, and the only advice I would give to you—the only

advice I would venture to give to you—is that you consider this question well, and determine what action you are going to take, and that in any legislation you propose you should aim at simplifying the law as much as possible. Make it easily understood and a law so easy to execute that he who runs may read, and that any man, whether he be a physician or not, can execute it. Then you will have an effective law. Texas is rich enough and will be entirely able to provide the means for the enforcement of such a law, but if you have cumbersome and expensive machinery the law will break down of its own weight. Now, some of you gentlemen of older years will remember that the United States government of a good many years ago organized a board of health to be appointed by the President or by the Cabinet—I do not remember which, but that law became so expensive and so cumbersome that it broke down of its own weight, and though never directly repealed it has not been executed for the last fifteen or twenty years. I am anxious not only in the interest of the profession, but in that of the people, that no mistakes will be made in this matter. Therefore, I repeat, you will find many difficulties. This matter ought not to be postponed too long. The Legislature meets in January. If a committee is to be entrusted with the preparation of such a measure as I have been speaking about, it ought to meet soon and begin its work. It should prepare its measure, ask the criticisms of the profession upon it, then revise it if necessary. Get all that done before the Legislature meets. The measure ought to be printed and on the desk of every member just as soon as the Legislature has been organized. And I want right here—for I feel it my duty—to pay a just tribute to the State Health Officers who have served during my administration. I will tell you what is a fact. I have had two of them, Dr. Blunt and Dr. Tabor, and neither ever failed to discharge his duty fearlessly and promptly whenever it became necessary. I have had the benefit of their advice. Never have I done a thing without their advice, and, in fact, I would not dare to do it. I rely on Dr. Tabor now as I did on Dr. Blunt before; and I feel this in regard to them, that, with the limited means at their command, they have both been entitled to praise and not to criticism for what they have succeeded in doing. You must excuse me for talking to you in this conversational style. If I had had any idea I was to have the pleasure of meeting you, I might have got some physician to write out a speech for me, and it would probably have been more interesting to you than the one I have delivered, but as I did not know you were to be in session I came unprepared, and am here simply to express my appreciation of your courtesy in sending a committee to invite me to this hall. I wish, in conclusion, to assure you that I am with you; that I am in the heartiest and most sincere sympathy with you all in your efforts to reform and elevate the profession and give to the people of Texas such laws as will enable the officers of health to protect the people from invasion of pesti-

lence and disease from without and to repress it when it breaks out within our own limits. (Cheers.)

NEW MEMBERS.

The Judicial Council reported the admission of new members.

MEMORIAL SERVICES.

A special time was set apart at the close of the afternoon session for the purpose of paying fitting tributes to the memory of members who had died within the year.

DR. J. H. SEARS, WACO.

DR. J. D. LAW, Belton: I had not expected to be called upon to make any remarks, and I have nothing prepared worthy of these memorial services, but right gladly I respond to the request to pay a tribute to the memory of our departed friend. There are few names in the profession that deserve more consideration at such services than does the name of Dr. Sears. We all know that he was a true man, an excellent physician, a stainless and spotless Christian gentleman. There are many young men around here to whom he was a father and a sympathizer, a guardian and a director, and to them the news of his death came as no ordinary blow. He immortalized himself as a physician, and also lived a good and useful life. The question which troubled the patriarch of old, and which science has never succeeded in solving: if a man dies, does he live again? troubled him not. He lived a grand and noble life, and when his sun set, it set with becoming grandeur. Let us embalm his memory in grateful and loving hearts. Let us emulate his virtues both as a physician and a gentleman.

DR. R. H. JONES, Wills Point: It was my pleasure to be associated a good deal with Dr. Sears. I knew him quite intimately for a number of years, and can endorse everything that Dr. Law has said of him. He was a useful and earnest member of this Association. He was an upright Christian gentleman, who discharged all the duties of life with exemplary fidelity. He was not a brilliant meteoric character, but he was a sound, safe adviser, a good physician, and, above all, a thorough, uncompromising gentleman.

DR. J. H. M'DANIEL, CENTERVILLE.

DR. S. R. BURROUGHS:—

"Pale death, with impartial step, knocks at the hut of the poor and the palaces of kings." (Horace.)

The duty assigned me on this occasion, seemingly, bears fruit from opposite poles. It is pregnant with that sense of sadness, on the one hand, that ever attaches to the surviving friend, while on the other it affords a pleasure to give vent to kindly expressions, commemorative of the virtues which so gracefully embellished the life of our deceased colleague. While I recognize my inability to do justice to my theme, I cannot permit an opportunity to pass without uttering a few thoughts in behalf of my distinguished friend. I use the word distinguished advisedly. In its broadest significance it is usually applied to those characters who have attained eminence as statesmen, as men of war, as men of occult science, and as men of art—men who step with stately, guarded tread, the higher and less crowded walks of life. But there is an application of this word to as noble and worthy use, when it is made to tell us of the excellent traits of character which so often adorn the lower, yet not less important circles of human activity. Indeed, to my mind, this word, so accustomed to a lofty abode, never appears in the fullness and splendor of its descriptive beauty, until it descends the hill-top of fame, to crown some jewel in a lower sphere of this life. It is, then, in this sense I desire its use in speaking of my departed friend. Dr. J. H. McDaniel was born May the 27th, 1849, in Leon county, Texas. He received his literary education from the common schools of the country. He entered the University of Pennsylvania in February, 1872, and graduated from its medical department in May, 1875, and in the same year located in Centreville, Texas, which place marked the scenes of his future home and usefulness up to the hour of his death. Dr. McDaniel's health had been failing for several years prior to his death. This fact was chiefly due to overwork. Finally, while suffering from a severe attack of acute influenza, coupled with serious complications, his immortal spirit disengaged itself from its mortal habitation and took its flight to "that land from whence no traveler has e'er returned" at 10:30 a. m., November 26, 1900.

"Where the brass knocker, wrapt in flannel band,
Forbids the thunder of the footman's hand,
The upholder, rueful harbinger of death,
Waits with impatience for the dying breath."

With the passing away of this noble life, the widow and orphans were forever bereft of the tender care, the wise counsel and courtly protection of a true husband and father; our country one of its best citizens; honorable, scientific medicine one of its most loyal votaries; and the speaker deeply realizes the withdrawal of that true, manly and unfailing professional support,—the growth of an unbroken succession of twenty-five years of personal association, and whose absence touches his innermost soul. At the fireside, within the home circle, surrounded by a happy, intelligent and promising family, in full possession of all that could make life worth

living; in the sacred precincts of the medical counsel chamber, at the bedside of the sick and dying, Dr. McDaniel moved under but one banner, emblazoned with the insignia of truth and justice. In his visits to his patients he left the conventional haste and undue professional starch where he tied his horse, and entered the sick-room with that bright and cheery demeanor which wisdom teaches as one of the chief amenities of this life, and which rarely fails in its effects to lift the sufferer's mind away from the afflicted body, leaving the latter for a time in abstract observance. With a delicate, cultivated tact, it was interesting to witness his skillful use of all the value there is in the various methods of obtaining information. All the facts that objective, subjective and suggestive fields could offer were duly appropriated to analytical assimilation. I have witnessed my friend take up the broader lines of evidence, one after another, and carefully, critically trace each to its most probable origin, until the entire human organism had been systematically investigated, and from the truths thus gathered build a logical correlation which would wear upon its composite face the true diagnosis. In those critical moments, which again and again recur throughout our professional lives; when the vital spark seemed to be resting in the most delicate balance; when judgment, sitting upon his throne as an abstract umpire, appears confused; when every line of defence save one has been carried by the successful assaults of the enemy, and all resources of defence dwell, as it were, in an atmosphere of dangerous indecision, and every faculty of the mind is appealed to for a prompt tender of its best product; when the intellectual, scientific and moral integrity of the medical man is tried "as by fire," I have witnessed my friend emerge from the smoke of this battle royal in that cool, calm, deliberative and triumphant state of mind so declarative of a consciousness of duty well performed. What mortal would deny a precious jewel to the crown of such a type of manhood? Outside the medical counsel chamber, a knowledge of these crucial tests of a man's character rarely appears, and can only be gently touched on such occasions as the present. As a man, built after the image of his creator, he possessed all the elements, in their finer organic capacities, which go to constitute a perfect manhood. As a citizen, alike loyal to the statutes of his country and to those refined, unwritten laws which the loftier attributes of man have conventionally enacted, he stood pre-eminent. Clothed with the natural modesty and reserve of the gentler sex, he moved in all his relations, both civic and professional, with a view to the betterment of all concerned. Wherever there was discord, wherever there was strife, wherever there was bitter contention,—with his cool, deliberate self-possession, he was first to offer an honorable and feasible plan of reconciliation, yet, as evidence of his unswerving integrity, in the midst of all his kind and persuasive pleadings for peace and amicable adjustment—when right and justice demanded support, he stood as a statue in their behalf.

In all his relations to the sick and troubled, he moved with that soft, noiseless tread and personal deportment so indicative of a polished gentleman and a true and tried professional peer. Dr. McDaniel was ever mindful of the essential requirements and the many difficulties which usually beset the primal years of the young practitioner. He would bring from his large storehouse of observation and experience the fruitage of a well disciplined and analytical mind, and with the prodigality and simplicity of a child, unfold its truths to his younger and less experienced colleagues, and in all matters of professional honor, he unfeignedly preferred his brethren, thus evidencing a broad and comprehensive intellect, supported by the pulsations of a noble heart. Charity was one of the cardinal points of his life. The poor and helpless found in him a friend indeed, the widow and orphan a safe and ever-ready counselor. Dr. McDaniel was an admirer of all that was good in both art and literature. He was fond of his books and journals. His library received regular additions under the tutorship of a critic's ideal. His greatest ambition was to know all that could be known touching his chosen field of labor; hence, he was ever abreast of the advanced lines of investigation. He is dead, yet will forever live in the minds and hearts of his host of relatives and friends, in the heart of each of whom there is left a tender, green spot, marking with emphasis some noble deed of our departed friend and associate. Let us emulate his many brilliant virtues, and trust the Supreme Architect for the ultimate.

"Leaves have their time to fall,
And flowers to wither at the north wind's breath,
And stars to set—but all,
Thou hast all seasons for thine own, oh death!"

DR. R. H. CHILTON, DALLAS,

DR. H. K. LEAKE, Dallas: At his home, on Maple Avenue, in Dallas, Texas, Dr. Robert H. Chilton died on June 5, 1901, after a sickness of only a few hours. He was fifty-seven years of age. No sketch of his life nor other means is required to identify his name with a prominent place, either in society or in the medical profession, or to establish the fact of his eminent usefulness in both. The formality of words can not alter nor emphasize the verdict that society and the medical profession have long since passed upon his character as a gentleman and physician of the highest order. Only as an example to be emulated by his surviving friends and co-workers, and those who may hereafter perpetuate its organization, is this brief record of his life and achievements necessary to be engrossed within the annals of this society. Dr. Chilton was not an ordinary man, for in appearance, tactfulness, scientific genius and enthusiasm, genial temperament and cautious judgment, nature and education had done much

for him, and all these characteristics were preserved to the end of his life, undiminished by personal bereavements and precarious health. Moreover, he was a benevolent man, who never turned away the needy, and who would suffer imposition rather than incur the possible risk of uncharitableness. While his generosity was discovered frequently toward others, it was especially marked toward those of his own profession, whose financial distress or embarrassments of a different kind worthily appealed to him for relief, and this generosity was bestowed freely, often lavishly. He had the strongest convictions of right and wrong, but these were born usually of deliberate judgment and fairmindedness. Having formed them, it appeared than neither force nor argument could alter them. Thus was his nature both sensitive and positive, probably to an extraordinary degree. While courteous and affable to all, Dr. Chilton entertained a sublime view of the responsibilities of friendship, for no man realized more sensibly the hollowness of the conventional misuse of this phrase; hence, he had a few real friends, selected with his usual caution, and to them his life was an open book when occasion demanded or even suggested the bestowal of his ready and unreserved confidence. The writer was one of these, and rejoices in the privilege of testifying to his high integrity, nobility of soul and professional attainments. Dr. Chilton was a frequent attendant upon medical society meetings. He was a member of the Texas State Medical Association, The North Texas Medical Association and the Dallas Medical and Surgical Society. In the meetings of these bodies he was accorded always a conspicuous place, either as an officer, on committees, or in discussions of professional subjects. He was ready and forceful in debate, but always considerate towards the views of his opponents. He was the author of numerous medical papers, chiefly read before societies, and these are notable for graceful diction and sound logic. His treatment of medical subjects was based almost exclusively upon his own experience, with only an occasional reference to the work of others. He often said that he relied more upon his own observations than upon the dicta of authority, and certainly in his published articles this fact is much in evidence. He was born and reared at Albany, Ky., where his early life was passed upon the tobacco plantation of his father, and as a clerk in a drug store. He had not the advantages of a collegiate education, but was an exemplary student in the common schools of his native town, to which is owing, probably, the creditable style and construction of his literary efforts. At sixteen years of age, when the Civil War had attained a serious and startling certainty, he enlisted in Woodford's brigade of Kentucky troops in the Union army, and served with this command to the end of that memorable struggle. Thereafter he began the study of medicine, and entered the Miami Medical College of Cincinnati, where he graduated in 1870. Returning to Albany, he practiced his profession there for several years, but moved to Louisville, where, after overcoming many obstacles to success, his abilities were recog-

nized finally, and secured for him appointments on the staffs of the Louisville City Hospital and the Masonic Widows' and Orphans' Home. These positions he filled with distinction. Later he abandoned the general practice of medicine for the specialty of ophthalmology and obtained instructions in this department both in Louisville and Cincinnati. Allured by the prospective growth and greatness of Texas, in February, 1880, he located at Dallas, at that time a town of about 10,000 population, and it is here where he made the distinctive record of his professional work and citizenship. For many years during his residence in Texas, Dr. Chilton enjoyed a wide and deserved reputation as one of the leading, if not the foremost, oculist in the State, and notwithstanding recent competition of the ablest kind, he maintained this position to the very close of his life. His clientele was large and influential constantly and yielded him a remuneration far beyond that of the average professional man. His ethical deportment was above reproach, and he abhorred the shady methods of the schemer and trickster, whether within or without his profession. He was devoid of haughtiness and ostentation, while full of zeal and enthusiasm for any righteous cause that claimed his adherence. Never did he harbor the evil genius of dishonesty, nor was he swayed by the ignoble spirit of calumny or prejudice. His views of men and things were of his own formation. If apparently he yielded his natural instincts, it was a tribute always to the cause of a friend whom he loved better than the self which prompted a different feeling—so strong was the tie that bound him to his friends, and that he shrank from breaking under any circumstances. It will be conceded uniformly that by the death of Dr. Chilton the community in which he lived suffered a serious loss, for he was in the forefront of every movement that tended toward genuine reform and development. Especially in his own profession will this loss not be repaired easily. On questions of public interest his views often were solicited and valued, while his bounteous donations to medical societies and other institutions, entertainments and organized charities, will be missed when future exigencies of this character must be provided for. And few there are among his fellow townsmen who will not be able to recall his mirthful salutation upon the street and ever cordial welcome at his office and home, for Dr. Chilton was the very embodiment of courtesy and hospitality. His virtues will be enshrined in the hearts of his friends and fellow citizens, whose emphatic declaration is that assuredly he was a man who lived not his life in vain.

DR. J. B. MASSIE, HOUSTON.

DR. H. A. BARR, Beaumont: I did not know Dr. Massie intimately, but there is no doubt that in his death the profession lost a valuable member. I well remember the first meeting of the Association I attended.

I was young then, and remember that he gave me words of advice which a few years of experience have proved to me were for my benefit. He was essentially a friend of the young doctor. This was well known by those who were personally acquainted with him, and also by those who only knew him by reputation. He was always an earnest worker for the upbuilding of medical science and the welfare of the medical profession. From what I knew of him I feel his loss greatly, and I know that those who were better acquainted with him must feel it much more.

DR. M. M. SMITH, Austin: Just a word in tribute to Dr. Massie. Two years ago we had under discussion the question of State medicine, and we discussed this question of a State Board of Health and the passage of a new medical law. We did not have a member in the Association who gave us more valuable assistance and good advice on that occasion or who took a more active interest in the subject than did Dr. Massie. He stood forth prominently in favor of higher claims for preventive medicine to enable the profession to stamp out disease in all its multiform varieties. He asserted that our great aim should be the prevention, and not the mere curing of disease, and he believed we should have laws to permit of a great deal more being done in this direction. I desire simply to pay my respects to the memory of the deceased as that of a worthy and honored member of the profession.

DR. C. W. BOGGS, MARQUEZ.

DR. S. R. BURROUGHS: I was associated with Dr. Boggs for a great many years and I always found him on the side of right. He was a steady friend of mine, but he lived some distance from me, and so, unfortunately, we were only thrown together occasionally. I am conversant, however, with the chief points in his life. He was a doctor in every sense of the word. He was a man who always traveled on the higher plane in our professional life. He was pure in character, noble in his thoughts, grand in his ideas. He was full of charity. Not one of the poor ever departed from him either on the street or at his homestead without obtaining that which he desired. I know this to be so. Dr. Boggs was in the highest sense of the word a professional man. He labored for the interests of the professional man. But he was at the same time a useful man outside of his profession. He was a man who was resorted to by the neighbors for counsel and advice when any trouble came upon them. He was a safe man with whom to take counsel. Dr. Boggs when he died left a place, both in and out of the profession, that it will indeed be difficult to fill. Dr. Boggs graduated, I think, in 1868, the same year in which I graduated. We began the practice of medicine in the same county about the same time. We were young men together, we were middle-aged men together, we reached the hilltop of life together, we descended so far together until

his death, and I shall ever remember him as one of my warmest friends, both professionally and otherwise. He was a member of all the societies ever organized in our county. We had many societies whose flag went down in the dust, but Dr. Boggs always stood by the flag while it was flying. He was a man who would have done honor to any community and to his profession at any time and under any circumstances. He has left hosts of friends to mourn his loss.

The other deceased members to whom references were made were Dr. L. Ashton, Dallas; Dr. W. W. Walker, Schulenburg; Dr. J. C. Mayfield, Galveston.

THIRD DAY.—*Morning Session.*

REPORT OF COMMITTEE ON SECRETARY'S AND TREASURER'S REPORTS.

The President having called the house to order, Dr. W. R. Blailock, McGregor, secretary of the committee to which the Secretary's and the Treasurer's reports had been referred, submitted the following report:

To the President of the Texas State Medical Association:

We, your committee appointed to examine the reports of the Secretary and Treasurer, after a careful examination and comparison, find them correct as stated.

We find that $25 was allowed the Secretary as expenses for attending a meeting of Committee on Revision of Constitution and By-laws, held in Dallas, in February, 1902, and that nothing was paid any other member of said committee.

*We also find that $32.75 was allowed Dr. Walter Shropshire for expenses to Austin when he was not a member of the Legislative Committee, but made one visit upon the invitation of the chairman of the Legislative Committee. While we think it was proper and right that these amounts should be paid, we think there was no authority for it.

J. T. WILSON, Chairman,
W. R. BLAILOCK, Secretary,
J. D. DORBRANDT.

*This clause expunged by resolution adopted May 9, 1902. Dr. Walter Shropshire was a member of the Campaign Committee. See Transactions, 1900, List of Officers, page ix.—EDITOR.

After some conversation, in the course of which explanations were given as to the circumstances under which the items excepted to were expended, the report was adopted, a motion having been previously made and agreed to that the sums in question be allowed.

Dr. Shropshire protested that a wrong idea was conveyed by the wording of the resolution which made it appear that the sum he had charged had been allowed, whereas it was only a part of $200 he had been authorized to spend to get a national law passed. He had charged nothing except for money he had actually paid out.

THE NEXT PLACE OF MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

DR. FRANK PASCHAL: I have been requested by the West Texas Medical Association to make it known that it is the desire of the profession of San Antonio that the American Medical Association should be invited to hold its next annual meeting in Texas. We feel that Texas is entitled to recognition at the hands of the American Medical Association. It has held its meetings in almost every other State, and meanwhile Texas has been contributing scientifically and financially to the support of the Association. I therefore move that the American Medical Association be invited to hold its next annual meeting in Texas, and that San Antonio be selected as the place of meeting.

DR. WEST: I beg to second the motion. Our delegates to the American Medical Association should be instructed to use every effort to obtain the object in view.

Dr. Russ said it should be understood that the expenses of these delegates be paid. To remove all doubt in the matter, he made a motion to this effect, after which the original motion inviting the American Medical Association to meet in San Antonio was adopted.

STATE BOARD OF EXAMINERS.

Dr. J. T. Wilson then submitted the report of the State Board of Examiners, which was as follows:

REPORT OF THE MEDICAL EXAMINING BOARD FOR THE STATE OF TEXAS.

To the President and Members of the State Medical Association of Texas.

MR. PRESIDENT AND GENTLEMEN: We beg to submit for your consideration the following facts in regard to the work of the Medical Examining Board for the State of Texas and the law governing the same to this date.

The law became effective on July 9, 1901; on the tenth the following names were announced by the Governor as his appointments to compose the membership of the Board: S. R. Burroughs, J. C. Jones, F. Paschal, J. W. Scott, J. H. Evans, J. H. Reuss, D. J. Jenkins, M. M. Smith and J. T. Wilson. These members assembled at Austin, on July 23, 1901, effected an organization, adopted by-laws and rules, and prepared the necessary preliminaries for the efficient work of the Board. The city of Austin and October 1st were selected as the place and date for the first meeting for the examination of applicants. The Board convened in Austin on this date and was in session three days. Five applicants presented themselves for examination. Four passed successful examinations, were granted licenses and one was rejected. The total number of licenses on the register to May 1, 1902, were 1,091. There were issued by the Secretary four permanent licenses after examination at a regular meeting to graduates of the following schools, viz.: McGill University, Canada; Howard University, Washington, D. C.; University of Virginia, Charlottesville, Va.; Medical Department, University of Indiana, Indianapolis. The general average of a possible hundred was eighty. There was one rejected, not a graduate, and whose average was twenty. There has been issued since the last meeting of the Board to May 1, 1902, fourteen temporary licenses. Four were rejected after examination for temporary license.

Fourteen reciprocity licenses were issued to physicians of other States who held license from examining boards of said States and whose standard of requirements were found to be equal to those of this State.

There were issued one thousand and fifty-eight licenses to those whose diplomas had been registered in the office of the district clerks since January 1, 1891, on certificates from deans of colleges certifying to graduation and date thereof, and from district clerks to registration of same. There were about twelve applicants for license on fraudulent diplomas, which were, of course, refused.

The expenses of the Board to this date have been $450. This does not include traveling and hotel bills. The amount received by the Treasurer to date is $525; leaving a balance for other bills yet to come in of $75. It will be noticed that there were very few applicants who presented themselves for examination at the last meeting, nor has the number for temporary licenses been large. The examinations by the Board, while thorough and practical, were fair and just, a creditable per cent. in all the branches was required. Not less than an average of seventy-five per cent. was accepted and the general average of those who passed was somewhat more than that.

It is the policy of the Board to be governed in its duties strictly by the letter of the law, and it has put forth its best efforts in that direction.

The work of this Board has been arduous and exacting, putting to the test the loyalty of its members. It has been necessary for them to devote

considerable of their time to the duties pertaining to the work. The correspondence is very great, it frequently requires a number of letters in a single case. The examinations for temporary license requires most of the time from two and a half to three days. But the greatest amount of labor has fallen upon the Secretary, who has been overwhelmed and could not find it possible to dispatch the work of his office with that promptness so much desired by the Board. The correspondence in the Secretary's office has been enormous. The issuing of licenses to those in the State who had registered diplomas since January 1, 1891, which, as you will note from the above report, has been to date 1,058, all of which had to be registered in a book kept for that special purpose, with the necessary data, has been a stupendous task, and is not yet finished. Only a man of even mental balance and strong physique could have borne up under the strain, and it is hoped that those personally interested will continue to be patient and bear with unavoidable delays. It is gratifying to be able to testify to the disposition to comply with the law on the part of those members of the profession who receive license on registered diplomas, who have been rapidly coming forward with the required proof and obtaining State license. It is probable that after the next meeting of the Board there will be very few who have not complied with the law and those who began practicing since January 1, 1891, on diplomas and have no State license registered with the district clerks should be investigated. State license gives the holders better standing, and it is hoped that every member entitled to it will apply promptly; it costs them nothing and this Board is anxious to see every practitioner in the State legally licensed and a member of this Association.

When these licenses are all issued, the work will not be heavy, and it is confidently expected that the Secretary can be more prompt in issuing permanent licenses; there will be fewer losses, the correspondence meet with a more ready attention and more satisfactory responses. It is expected that the labors of the Board would be very great for the first year or two, and the following sentence, taken from the report of the Legislative Committee to this Association last year, seems prophetic in the light of subsequent happenings: "Personal sacrifices will be demanded by no means profitable, all things taken into account, the expense will be considerable, and as the State makes no appropriation for its maintenance, it is possible that the members of the Board may be called upon at times to contribute something from their private means for its support." This prediction did come to pass. There have been considerable personal sacrifices demanded, and the members of the Board have promptly made them; it has been necessary for them to contribute from their private means to support it. That also has been cheerfully done. It was the inauguration of a new law, a law whose principles and requirements were new to Texas, which, if properly executed, will bring the medical profession from a state

of chaos to the plane of greater respectability, advance the science and the art by the addition of more competent doctors, the real benefactors being the laity of this great commonwealth. There was no appropriation from the State, it had no income for its preparation, it had no funds to defray office expenses, the employment of clerical force to cope with the immense correspondence from every part of this great country, to attend to the applications, all the details for facilitating the business coming before it, the printing of blanks, stationery and postage, all of which expense in the beginning had to be defrayed by the members. The extent of the correspondence, the care in keeping records completely and correctly, can not be appreciated fully by anyone who has not had some connection with some of these State boards. The Board has labored to the best of its ability for the legal performance of its duty, caling in the aid of the Attorney General when necessary in order that the proper legal construction should be put into any question of which there was the least doubt. There has been some correspondence with the members of the profession in regard to illegal practitioners. We have endeavored to answer every inquiry from whatever source, and to make explicit and satisfactory explanations of the law, the rules of the Board, etc., to all.

The enforcement of this law is a very important question. What is everybody's business is nobody's business, might be very tritely applied to this, and while it is everybody's business to see that this law is properly executed, no one outside of the profession is likely to take much interest in it. By simply having laws enacted and placing them on the statutes does not accomplish what is desired. Laws will not enforce themselves. It therefore devolves upon the medical profession to see that the medical laws of the State are enforced. The public, as a rule, take no interest in the prosecution of medical frauds and empirics have not been educated to the fact that the real benefit accrues to them. A majority do not differentiate between a competent, honorable physician and an impostor; they look upon all prosecutions as persecutions, and affect to believe all these laws are for the exclusive benefit of the doctors. Prosecuting attorneys are slow to take up the cases of illegal practitioners, in fact, there is an apathy on their part in this regard which amounts almost to disinclination; it is so everywhere. They think there is nothing to be gained by it for them. All humbugs spend much money in advertising, which gives them a certain amount of influence and they are not slow to take advantage of it. It seems strange that so many people will entrust their health and lives in the hands of a stranger, of whom they know nothing, allow themselves to be inveigled into his clutches by the glare of a blazing advertisement, be fleeced of their money and receive nothing in return. It is strange that the most sacred relations and confidences known to the human family should be so recklessly entered into with one entirely unknown, except by the blare of his brazen trumpets. If we could break

down the barriers of superstition and ignorance that come down from the dark period of the middle ages, dispel the illusion of hoodooism, the so-called divine gift of healing, educate the people up to the fact that there is no mystery about medicine, nothing miraculous, that every disease is not produced by the dislocation of a bone, and teach the value of its truly scientific aspects, there would not be so much cry of persecution when quacks are arrested. It is plainly then the duty of the profession to see that this law is enforced. It cannot be done by individual efforts alone, but by a united profession aided by individual endeavor. It is not a part of the duties of the Board of Examiners as a body to hunt up and prosecute offenders, but as any other individual member of the profession, they should take cognizance of any infringement and report it. If the profession will unite and fearlessly hunt down these sharks, there is no reason why Texas with its present law cannot rid the State of its illegal practitioners, as did Kentucky. Already many have been driven out, and we know that many physicians are taking up the matter and making it uncomfortable for violators in their communities. When this body has been reorganized under the new regime, will encourage and foster the organization of district and county societies throughout this great domain, with justice and equal rights to all, cultivate that harmony, unity and fraternity so necessary and so much desired, inestimable good can be accomplished, and it will prove the solution of the problem of enforcing the medical laws of the State. The profession should then have a salaried attorney employed in its interests; when a person is arrested for violating a medical law, have him convicted and punished, even if it should become necessary to follow the case up to the Supreme Court.

For the present, we beg to recommend that the State Medical Association of Texas appoint a committee of one from each county where practicable, with instructions to investigate the conditions in his own county, examine the medical records in the office of the district clerk, solicit the aid of his fellow practitioners, report all infractions to the county attorney, if he neglects to prosecute, then refer the case with the evidence to the grand jury. Request the district associations to appoint a like committee from each county composing their districts with similar duties and instructions, that they may co-operate with each other. In this way a vast amount of good can be accomplished. Doctors often hesitate to make these complaints, but it is their duty to do so, they owe it to the public for whose health they are the guardians, they owe it to themselves, and to the profession of which they are members.

AMENDMENTS.

Owing to the fact that there is so much opposition to medical legislation, that it will be very difficult to have desirable changes made, and after examining other State laws, it was found that if properly executed,

the Texas law compared favorably with the best of them, after careful thought and due consideration of the subject by the Board, it was deemed to be the part of wisdom to recommend no radical changes at this time, and only a few minor amendments are offered with the recommendation that they be adopted. What we do recommend, and what is of greater importance, is that the profession be on guard over the law as it now stands, and prepare to flank every movement that may be attempted upon it by designing enemies. Without the utmost vigilance on the part of the profession, attacks will be made upon it and its usefulness destroyed.

Therefore, we beg to recommend that a Legislative Committee of five be appointed from this body and be in readiness to assemble at the capital at any time if their services should be required to resist any attempts to abridge its efficiency, that a like committee be appointed from each district association to co-operate with and be subject to the call of your committee, and repair to their assistance if the emergency should arise.

The Board would respectfully recommend the following minor amendments to be made to the law, and if approved by this Association, and with its sanction, will make an effort to have them passed at the session of the next Legislature:

Section 4. Amend by adding to the last line after the words "surgery and midwifery" the following sentence: "The said boards shall procure a seal, which shall be the official seal of the boards."

Section 5. Amend by striking out the words, "the seal of the State of Texas" in the last line, and adding instead, "the seal of the board granting such license."

Section 8. Amend by adding in line twenty-four, after the words "receive a license from the Board of Medical Examiners for the State of Texas to practice in this State," the following: "provided that the medical laws and examining boards of such States and Territories grant equal rights and recognition to the licentiates of the boards herein created."

Amend by adding to the same section (8), the following: "Provided, that those who had registered diplomas before January 1, 1891, and all those who have registered licenses in the district clerk's office in the county of their residence, if they should remove to another county, shall have the same registered with the clerk of the district court of said county with date of issue and of previous record."

Section 13. Amend by striking out after the words, "surgeon or midwife," in the seventh line, the following sentence: "provided, that the provisions of this act do not apply to persons treating disease who do not prescribe or give drugs or medicine."

It was found to be inconvenient to send every license to the Secretary of State's office in order to have the seal of the State attached to it, consumed too much time, and the Board should have a seal of its own; for these reasons the amendment is recommended. We believe there should be recip-

rocal laws between the States, but this is a much vexed question, which has been extensively discussed from the various standpoints for several years, with no satisfactory settlement of the question. The great difficulty in the way is the unequal standard of requirements by the laws of the States and by State examining boards. If we have a law on our statutes which grants a license to a licentiate from another State without examination, and that State does not grant the same privilege to a licentiate from a Texas board, it is not reciprocity and is unfair. The amendment recommended above is to cover this defect, and if passed, will change the law so that it will apply only to those States whose laws and requirements of examining boards are equal to those of Texas and grant the same privilege to a licentiate of the Texas boards, which licentiates from their boards will receive in this State. The other clause, which is sought to be stricken out, lets in many of the most flagrant frauds that disgrace the name of medicine; ignorant, without any conscientious scruples, playing upon the credulity of the populace, they are dangerous to any community, and often the cause of great harm to innocent, unsuspecting people. If every ism is to be allowed unrestricted freedom, then it is wrong to hamper with restraints the educated and respectable members of scientific bodies. Without this clause, the law provides for anyone who pretends in any manner to heal the sick to be legally licensed. All can be examined upon the fundamental principles of medicine, and can select the board preferred; if they have sufficient knowledge of the groundwork of medicine, can pass an examination upon the preliminary branches, is entitled to receive a license, no matter what his system or school of medicine. That class, who pretend not to administer drugs, pose in a hypocritical garb, claim superhuman powers; they do not recognize any such deadly maladies as diphtheria, tuberculosis, or other dangerous, infectious diseases. Such cases are permitted to go on to a fatal termination without appropriate treatment, no steps to isolate them is taken and the disease is allowed to spread at will, endangering an entire community; yet these people must have free license to commit all the mischief the ignorance of the people will allow. There is ample provision in this law by which all such people, if they can present a certificate of good character, regardless of creed, sect or pretended belief, may be examined upon the fundamental principles of medicine, and if they possess sufficient knowledge of these principles, may be legally licensed. It is unjust that educated men be subjected to examination and these frauds allowed unlimited freedom. There is no provision by which anyone more than twenty-one years of age and of good moral character can be prevented from appearing before the board of their choice and examined in those branches of which everyone should have practical knowledge who is permitted to practice medicine, or pretend to heal the sick. A clause in section 6 of the law reads thus: "If any applicant desires to practice a system not represented by any of the boards

hereby established, he or she may elect for himself or herself the board before which he or she will appear for examination; provided, that no applicant shall be rejected because of his or her adherence to any particular school of medicine or system of practice, nor on account of his or her views as to the method of treatment and cure of disease."

It is with a feeling of gratification that we can report, that while we have had to deal with many people in the discharge of the duties devolving upon us, the relations sustained to them have been cordial and pleasant, not a single unpleasant incident occurring to mar the harmony that has existed. Applicants have generally submitted gracefully to the conditions they found, and have exhibited in some instances a wonderful amount of patience under trying circumstances.

We feel greatly encouraged to believe this law will have more and more the cordial support of the respectable members of the profession throughout the State, even many of those who were opposed to medical legislation, as it becomes better understood. The Board of Examiners, too, has had the co-operation of many members, and acknowledges it with thanks.

S. R. BURROUGHS, J. H. EVANS,
J. C. JONES, D. J. JENKINS,
F. PASCHAL, M. M. SMITH,
J. W. SCOTT, J. T. WILSON,
J. H. REUSS,

Members of the Board.

DR. P. C. COLEMAN: I am proud of this committee. The report we have just heard read is worth twenty years of hard work. I move that we express our apreciation of the zeal and success with which the committee has discharged its duties, and also that the report be received.

The motion was seconded and adopted.

DR. J. D. OSBORN, Cleburne: I move that this examining body, all being members of the State Medical Association, be constituted a committee to take steps with a view to secure the amendments in the law recommended in the report.

The motion was seconded and adopted.

DR. WILSON: I want to make a request. It is that the Association support the efforts of the Board to get the laws carried out. I am at your service for whatever I can do. Help me, and I will help you all.

Dr. Shropshire submitted the report of the Committee on the President's Annual Address, which was as follows:

Mr. President and Gentlemen of the Texas State Medical Association:

We, your Committee on the Recommendations of Your President's Message, beg leave to submit the following:

That portion relative to reorganization has been acted upon by this Association and needs no recommendations from us. Relative to the change of place for this meeting, we beg to say that, while we deprecate any innovations upon our by-laws and Constitution, we realize the fact that the action taken was for the best interests of the Association, and commend our President for his course in the matter. We heartily endorse what he said relative to our State Board of Examiners, and the good to come of our new law.

Respectfully submitted,

A. B. GARDNER, Chairman,
W. SHROPSHIRE, Secretary.

The report was received and adopted.

REPORT OF THE COMMITTEE ON ORGANIZATION OF MEDICAL SOCIETIES.

Dr. S. R. Burroughs, Buffalo, submitted the report of this committee, as follows:

To the President and Members of the Texas State Medical Association:

Your Committee on Organization of Medical Societies would respectfully submit the following report:

After the adjournment of your honorable body at its late Galveston session, your committee at once engaged in a correspondence with members of the profession located in the various sections of the State, looking to the prosecution of the purposes for which it was called into existence. Almost in every instance the responses received conveyed the intelligence that the members of the profession located in the several districts, who were at all likely to affiliate with any society, were already members of their county or district societies, and that those who were not could become members if they so desired.

This information led your committee to investigate the facts touching the number and geographical distribution of the city, county and district societies already in affiliation with your honorable body.

It was found that there were twenty-one well-organized, active, working societies in affiliation with the Texas State Medical Association, and that their geographical distribution effectively covered the centers of population, with probably the exception of one or two points, which latter are as

yet not ripe for effective and permanent organization, as evidenced in one instance by lack of number interested, and in others want of harmony.

There is a North Texas, South Texas, East Texas, West Texas and a Central Texas Association, irrespective of sixteen other societies, whose legitimate jurisdictions not only meet on dividing lines, but conflict, thus reducing the field of labor for your committee to the irregular and sparsely settled outlying districts.

It is believed that a multiplicity of organizations, whose natural territories conflict, is not to be desired for several important reasons. (1) Because conflicting interests within the household would prove detrimental to the common interests of organized medicine, for which it is the chief duty of your committee to labor. (2) Conflicting territory engenders an unhealthy rivalry, which, in a large proportion of instances, ends in destructive friction. (3) Unnecessary multiplicity of the same element within the same jurisdiction diminishes the strength of the whole by fatal attenuation and internal attrition.

It is believed also that a careful and critical study of the conditions herein presented will result in the support of the views of your committee.

While there is yet work for the committee, that of organization of the members of the profession into societies, can but move with the increase of population, and this fact determines a slow development.

It was thought by your committee to be the better part of wisdom not to spend the time and money of the Association in premature and fruitless efforts, but to keep close in touch with the growth of population, and secure the advantages of each opportunity as it presented itself in the constant change of conditions.

In view of the fact that radical changes are likely to be made in the construction of your Constitution during your present sitting, which will materially affect the relations between your body and all city, county and district societies, your committee has deemed best to suspend any further action in the premises until such changes shall have been determined upon.

Respectfully submitted,

SAM R. BURROUGHS,
J. H. EVANS,
T. J. BELL,
J. E. GILCREEST,
W. R. BLAILOCK,
C. M. ALEXANDER,
M. M. SMITH,
P. C. COLEMAN.

Dr. West: "I move that the report be received and adopted.

The motion was seconded and adopted.

REPORT OF COMMITTEE ON STATE BOARD OF HEALTH AND VITAL STATISTICS.

Dr. M. M. Smith presented this report, which was as follows:

Mr. President and Gentlemen of the Medical Association of Texas:

Your committee charged with the care of the bill looking to the creation of a State Board of Health, with provision for the collection of vital statistics of this State—continued from the last meeting of this Association—begs leave to report that it has made but little progress with this work during the year, because there has been no regular session of the Legislature whereby it could hope to have such a law enacted. But your committee feels reasonably certain that the success of its labors is assured in the near future; in fact, it is confident a suitable law perfecting the health laws, with a provision for the collection of vital statistics, will be enacted at the next regular session of the Legislature.

The outlook today is brighter than at any time within the history of this Association. The Governor of this great State, the Hon. Jos. D. Sayers, only yesterday, when addressing this Association, after referring to the enactment of the new medical law, said: "In my judgment, as a layman, it is strongly necessary to enact another measure. The Health Department is controlled by a single man, although the statutes impose duties in important matters upon the Governor. There ought to be a thorough reorganization. The Health Department, instead of being confined principally to duties of a general character at Austin, ought to be able, through regularly appointed boards, under authority of law, to ascertain conditions in every village, town, city and county throughout the State. There is now no law providing for such boards. The legislation which we need ought not to be cumbersome. If there are too many boards, or too many members of the boards, if the plan is expensive or otherwise cumbersome, the law will never be executed."

The State Health Officer of Texas, Dr. George Tabor, last night, in speaking to this Association, said that the present laws were inadequate, and that he stood ready to co-operate with this Association in having such laws enacted as would perfect our system of health laws, and as you know, this Association stands pledged to this work.

Your committee, in conclusion, desires to recommend that this Association appoint at this time an entirely new committee of five members, consisting of men versed in sanitary science and preventive medicine; men who are active and yet conservative—and that these men be entrusted with the preparation of a proposed law creating a State Board of Health, with provisions for the collection of the vital statistics of this State. We further recommend that this Association place at their disposal such a sum

of money as will be necessary to defray the expenses of their actual needs, in paying for postage, printing circulars of information and other outlays necessary for the most efficient work; and we beg leave to further suggest that a campaign of education be waged all over this great State. This committee, in concluding its labors, as your representatives on this important work for the past five years, desires to return its sincere thanks for courtesies shown, and assure you and your new committee that it stands ready to aid in every way possible in this great humane work.

R. H. HARRISON, Chairman;
J. D. OSBORN,
S. C. RED,
BACON SAUNDERS,
M. M. SMITH.

DR. PASCHAL: I move that the report be received and adopted. The motion was duly seconded and carried.

THE DEATH ROLL.

DR. FARMER, Dublin: I beg to call attention to the fact that the name of Dr. C. F. Ulmer, who died on March 23, does not appear on the death roll, and I move that it be added.

The motion was seconded and adopted.

HONORARY MEMBERSHIP.

DR. WILSON: I understand that the venerable Dr. Harrison thinks of resigning. I beg to move that he be elected an honorary member.

The matter was referred to the Nominating Committee.

EXPENSES OF COMMITTEES AND DELEGATES.

DR. RUSS: We have saddled on our State Board of Examiners some additional duties, and they will necessarily incur some expenses. In view of the misunderstanding we had today I beg to move that we allow the board sufficient to cover their requirements.

DR. WILSON: On behalf of the Board of Examiners I desire to state that we hope to have sufficient money for all our needs without calling upon the Association.

COMMITTEE ON STATE BOARD OF HEALTH.

At the afternoon session the Committee on State Board of Health was nominated as follows: Dr. F. E. Daniel, Austin; Dr.

P. C. Coleman, Colorado City; Dr. Frank Paschal, San Antonio; Dr. W. R. Blailock, McGregor; Dr. Bacon Saunders, Fort Worth. Dr. Daniel, Chairman.

MESSAGE FROM SAN ANTONIO.

The Secretary read a telegram from the Business Men's Association of San Antonio assuring the Association that the American Medical Association would receive a warm welcome in the event of its holding its meeting in that city next year.

NEW MEMBERS.

The Judicial Council reported the admission of new members.

ADDRESS BY THE PRESIDENT OF THE UNIVERSITY OF TEXAS.

Colonel William L. Prather, President of the University of Texas, having been introduced, said:

I presume that you are glad that I have not a paper to present. I am pleased to have an opportunity of meeting with this Association. We are especially allied to the medical profession, and are endeavoring to advance its interests. It is an old saying that it is an ill wind that blows no one any good. The fearful wind we had at Galveston which blew ill to so many has resulted in benefit to us, inasmuch as it has enabled us to refit the medical college there, and put it in such a condition that young men, and young women, too, may be better educated in the science of medicine than ever before, and we are confident that the contributions which we will be able to make year by year to the noble profession which you represent, and which is so intimately connected with the welfare, with the happiness and with the advancement of the people, will do equal honor to the University and the profession. Our laboratories are better equipped than ever, and the work being done there—we have a four years' course—is of the most admirable character. Those who have graduated from the Medical School of the University of Texas have always acquitted themselves well when they have applied for positions. I believe in the people of Texas. The more I see of them the more I believe in them and in the greatness of our State. We are just beginning to catch glimpses of our possibilities in the way of the development of our natural resources, and great as these are they are not to be compared to the possibilities that

are to be found in the men and women of Texas. There is one thought which has been uppermost in my mind since I came to the responsible position I now occupy, and that is that there should be established in this State different and higher and nobler ideals than those which dominate public characters today, that there should be different standards than those established by politics, that new methods and ideals must be introduced, and the people be educated to a realization of the fact that they are a great commonwealth, and should no longer tolerate the domination of political standards and methods. I believe the spot in which we can best reach the root of the disease is in the youth of the land, and I hope to see the new spirit of which I speak manifested in the noble profession which you represent. I repeat I am glad to be with you. I am glad to feel that the great science of medicine—and it is every year becoming more and more a science and less and less a mere matter of disconnected cases—I say I am glad to feel that the science of medicine is engaging the attention of so many earnest men, because we are marching forward in every line in Texas, and the time is coming when it will be realized that, great as is our territory and great as are our material resources, they are not greater than our ability to carry on all kinds of scientific investigation. I thank you for giving me the opportunity of addressing you.

NEW MEMBERS.

The Judicial Council reported the election of new members.

COMMUNICATION FROM THE PHARMACEUTICAL ASSOCIATION.

Dr. Shropshire said a communication had been received from the Pharmaceutical Association of Texas stating that its next meeting would be held in San Antonio at the same time as the meeting of the Texas Medical Association, and suggesting that they might be allowed to join them in a joint session on Materia Medica and Pharmacy. He moved that an invitation be extended to the Pharmaceutical Association to take part in a joint session as suggested.

Dr. West seconded the motion, and in doing so said the Committee on Revision of the Constitution had proposed to make provision for the holding of such joint sessions, as was done by the American Medical Association.

The motion was adopted.

NOMINATING COMMITTEE.

The Nominating Committee was appointed as follows:

Dr. Sam Corley, Clarksville; Holman Taylor, Marshall; W. A. Watkins, Kemp; J. R. Nichols, Greenville; J. T. Benbrook, Rockwall; J. A. McGee, Rice; J. T. Moore, Galveston; O. L. Norsworthy, Houston; H. W. Crouse, Victoria; M. M. Smith, Austin; G. T. Thomas, Rogers; J. D. Osborn, Cleburne; J. M. Inge, Denton; W. B. Russ, San Antonio; David R. Fly, Amarillo; S. T. Turner, El Paso.

RECEPTION IN THE CARNEGIE HALL.

In the evening a reception was given in the Carnegie Hall, the program of exercises being as follows:

PART I.

President's Address ..... Dr. Taylor Hudson.

Voice—"Villanelle" ..... *Del' Acqua.*
Miss Ella Wade Pharr.

Reading—"Scenes from David Copperfield" ..... *Dickens.*
(a) "Dora and I are Engaged."
(b) "Call Me Your Child-Wife."
(c) "It is Over."
Miss Caroline Duncan.

Voice—(a) "The Lorelei" ..... *Liszt.*
(b) "Spanish Love Song" ..... *Ramalt.*
Miss Ethel Shepperd.

PART II.

Annual Oration ..... Dr. W. H. Moore.

Piano—(a) Study, C-minor ..... *Chopin.*
(b) Minuet, op. 17 ..... *Moszkowski.*
Miss Maude Gillespie.

Voice—(a) "May Morning" ..... *Weatherly.*
(b) "Irish Love Song" ..... *Lang.*
Mrs. Jules D. Roberts.

PRESIDENT'S ADDRESS.

The President of the Association, Dr. Taylor Hudson, delivered the following address:

Mr. President, Members of the Texas Medical Association, Ladies and Gentlemen:

It is a law of this Association for the retiring President to deliver an address upon the occasion of its annual meeting. In obedience to that law I am before you. And, first, let me thank you for the honor conferred upon me in electing me President of this Association, the greatest honor that can be bestowed on a Texas doctor by Texas doctors.

Aware that I should meet an audience composed of representatives of other professions, business men and ladies, I have chosen to confine my remarks to such matters as will prove of interest to a mixed assemblage, rather than to a strictly technical subject, which, from its professional terms, would be of interest only to the members of our Association.

I am conscious that in this I have set myself a somewhat difficult task. Are we not all exposed to the same danger of being shunted off onto side tracks instead of keeping the main line? Our vocation is commonly narrow and must be. Even the liberal professions, as they are called, if there are any such, for whether they are liberal or not, depends on the man; and one finds himself more physician, more lawyer, more preacher than he is man. Our vocation gets to be bigger than we are. A man is overshadowed, and his character is like a kind of vegetation under a tree, and lacks the health and fibre that sunlight gives. The remedy for this is in the manly in distinction from merely technical or professional. It is the larger view, the nobler vision, the human feeling. It has been said that the lawyer as a minister at the bar of justice, through the actual law must be trained to believe his employment is public duty primarily to God and his country, not a mere vocation for private wealth, or honor, and that his functions as a lawyer or judge are to be performed for the promotion of truth and right and for the defeat of wrong and falsehood. These are great words, and their

spirit is as true of the medical as of the legal profession. In other words, we must be men before we are professionals. And above the dust and grime of earth, above everything else, we must be in love with man.

Formerly it was thought and taught that the profession of the clergy alone was sacred. Other professions and occupations were termed secular. They were chosen through personal inclination or drifted into through circumstance or necessity. Not by divine leading did men engage in any other life work than that of the clergyman or religious teacher. Happily for the general uplift of life this conception is becoming less common. We are beginning to look upon all useful labor as sacred. It is not that the ministry is other than a sacred calling, it is not that men are not called upon to preach the gospel now as distinctly as they ever were; but we are coming to see that all callings truly beneficial to the world—hand work, head work, heart work—are exalted. No work, whether of hand or heart or brain is common and secular unless men make it so. Let us insist that God calls men to do the varied forms of work necessary for the progress and development of the world, as truly and distinctly as he calls men to preach the gospel of the Nazarene. It is the high privilege of every man to regard his task as a work to which he has been divinely summoned. And he should think of it as more than a mere opportunity for earning a living or gaining satisfaction, power or fame. It is his opportunity of serving his fellowmen, of bearing a part in the world's work, of contributing to the upward evolution of human life.

I look abroad upon the men who are gathered here this evening. Almost all of you are closely identified with some one among the many occupations and professions which together make up the active life of men. I know that not one of you who is at all thoughtful has failed to feel how this division of labor has its dangers. You have feared corruption, that is the loss or over-laying by base accretions of the pure idea of your work; and you have feared narrowness, the loss of broad human sympathy in the inevitable provincialness of what you have to do. Where is your safeguard against these things which you fear? Shall you give up the

life of your profession and simply be a man at large? That you cannot do, and if you could it would not be best for most men, however it might answer for a few. We need to defend our callings. It is only thus that they can be redeemed and become both for us and the world a blessing. The necessary labors which the nature of man, and his relations to this earth demands all done by men full of the love of God and neighbor, and using to its best the special faculty that is in him, the world needs no other millennium than that; and that millennium, however far away it looks, is not impossible. On the walls of the Roadside Settlement at DesMoines, Iowa, there is a quotation from Homer, which serves as the motto of its resident. "He was a friend to man, and he lived in a house by the side of the road." To this high note of human brotherhood, Sam Walter Foss had keyed a little poem which ought to find a responsive echo in all our hearts.

"There are hermit souls that live withdrawn,
In the place of their self-content;
There are souls like stars that dwell apart
In a fellowless firmament.
There are pioneer souls that blaze their paths
Where highways never ran,
But let me live in my house by the side of the road,
And be a friend to man.

"Let me live in my house by the side of the road
Where the race of men go by,
The men who are good and the men who are bad,
As good and as bad as I.
I would not sit in the scorner's seat
Nor hurl the cynic's ban,
Let me live in my house by the side of the road,
And be a friend to man.

"I see from my house by the side of the road,
By the side of the highway of life,
The men who press with the ardor of hope,
The men who are faint with the strife;

But I turn not away from their smiles nor their tears,
Both part of an infinite plan.
Let me live in my house by the side of the road,
And be a friend to man.

"I know there are brook-gladdened meadows ahead,
And mountains of wearisome height,
And the road stretches on through the long afternoon
And passes away to the night.
But still I rejoice when the traveler rejoices,
And weep with the stranger that moans,
Nor live in my house by the side of the road
Like a man who lives alone.

"Let me live in my house by the side of the road,
Where the race of men go by;
They are good, they are bad, they are weak, they are strong,
Wise, foolish and so am I;
Then why should I sit in the scorner's seat
Or hurl the cynic's ban?
Let me live in my house by the side of the road,
And be a friend to man."

If we do not wish to go down in the battle of life with the great army of unnumbered and forgotten, we must live for others. It is given to use our opportunities of ministering to suffering humanity in such a fashion as shall make the books and instruments we use flash continuously as with the gleaming of the sword; able to give to the ordinary incidents of our lives the insistence of musketry, and all the power and dignity and lift that romance has thrown into the marching of armies of men and the contending of men on the desperate fields of battle.

You and I are children of the twentieth century. We are the twentieth century. But life has not changed its constitutional habit to suit our almanac. The world will not suspend or change its cosmic way of doing things because we have begun to say twenty instead of nineteen. Life is one, the same yesterday, today and forever. Pharoah's mummified body was nourished by food. His soul

by the eternal. But Pharoah died. Love is love, even there, and everywhere. When the explorers among some ancient tombs came upon a child's body, and over it this inscription, "Oh, my life, my love, my little one," every father's heart gave a great sob, and again the stones were wet with tears where father's tears had fallen three thousand years before. "The thing that hath been is that which shall be, and there is nothing new under the sun." How often have we seen the flower of life fade and its freshness wither, and have said, "where are the boasted powers of medicine, the pride of skill, the vain boast of the science?" How humiliating to professional pride. Efforts founded on years of experience and hard study vanish at the touch of death; and even the physician's hold on life is as brittle as that of his patient, in a moment not expected a wave on the sea of life baffles all of his struggles, and he in turn must pay the debt which he has so often seen nature claim from his patient. "It is vain to shrink from that which cannot be avoided; why hide that from ourselves, which at some period must be found, the certainty of death is a truth which man knows, but which he willingly conceals from himself."

The age has its national dangers. And it is one of the astounding paradoxes of history that an age of materialism always produces an age of superstition and quackery. In this country at the present time the mighty mass of popular energy flows in the channels of money making. Millions of people crowd our great cities in the feverish anxiety to share in the common struggle for money. Vast fortunes are increasing and new channels of luxury are opening. Side by side with these conditions has grown an intense interest in the achievements of material science. Certain conjectures of physical science filter through a cheap press to thousands of men and women who are not fitted either by education or natural endowment to understand their true implications.

They are discolored, distorted, and transformed into superstition. The struggle for money has so taken our time and strength, has become so ceaseless and absorbing that rational leisure for thoughtful study and meditation scarcely exist. Thousands of men and women, some of them belonging to high social circles and well

favored by the gifts of fortune, are every day falling under the influence of shallow and pernicious ideas. The dense ignorance of the masses in regard to all things pertaining to true medical science, and their faith in the efficiency of patent nostrums renders it an easy matter for the quack to ply his avocation. Read the advertisements of the average city daily and you will find necromancers, astrologers, fortune tellers, materialism mediums, faith healers, quacks and nostrum venders galore. And the patrons of these people are not only ignorant serving maids, but shrewd business men, men of affairs, display often a kind and measure of credulity that is simply amazing.

Education is the only remedy for such ignorance, and it rests largely with the medical fraternity to undertake the enlightenment of the masses of the people. The influence of mind over matter is a subject of the profoundest interest. To that study sensible and scientific men should bring all the acquired and carefully sifted knowledge that the ages have accumulated. Why may not the faithful and devoted physician be a consecrated priest in the vast temple of nature? He has banished pain in the dreamless sleep of anesthesia. He has conquered diseases that once slew thousands of victims. He has transformed poisons into medicine and revealed nature's soul of good in things of evil. Would he be a more faithful steward of the riches of God if he threw away the hardly earned achievements of the ages? Said the enthusiastic Moslem, "I will loose my camel and trust him to God." Said the wiser prophet, "Nay, friend, tie thy camel and trust him to God." Which was the fuller faith? Surely, he is the wise man who is willing to show his faith in God, not by erecting idols to ignorance, but by making a reverent use of the abundant means God has provided for our growth in larger knowledge and nobler living.

We hear of the wonderful, nay miraculous, cures effected by the Christian Scientist and the Faith Healer. But who are the people who have been cured? Where do they live? Are they willing to submit to rational scientific investigation? Let us find the healer who has cured one authentic case, say of Bright's disease, pulmonary consumption, or locomotor ataxia, and like the discoverers of

anesthesia and vaccination we will crown him with laurels of professional honor, and he can easily be guaranteed whatever fee, however exorbitant, he may demand.

There lies before the medical profession of today a destiny compared with which all the glories of the past shall be eclipsed. We stand in the brightening dawn of possibly the greatest epoch in the history of our calling. For never in completeness, in scholarship, in patience, in great breadth of action has the profession been so well equipped. Science is advancing by leaps and bounds. In a moment unexpected she opens up a path over an untraveled country, and the advance seems so daring that we hesitate to follow lest it be upon forbidden ground. Yet she pushes on with the fervor of inspiration to sound the mighty depths of the unknown. One after another, the mighty men, the heroes of the profession, have gone forth over the seas of an ignorant past, and brought back to us from their perils and in the face of the ridicule and opposition of unbelieving men, gems from these deep soundings that have illuminated the world of thought and been the means of health and blessing to multitudes of suffering men.

Marconi has done a marvellous thing. With the daring of a Hercules, has thrown, with a giant stroke, a thought across the traceless seas. A miracle you say? No more a miracle than the application of the simplest law of physics to the child student. It is only a new door opened by the master key of thought.

Men must still die; and the weak as a rule must die earlier than the strong. But death by consumption, by typhoid, by yellow fever, by diphtheria and plague may be and must be prevented. The morally and mentally weak must, in general, continue a losing battle with the mentally and morally strong, but defeat because of an inherited taint of insanity, of epilepsy or melancholia can and must be prevented.

The innumerable ills that afflict the human family are in the main the result of ignorance and lack of skill, or inability to use mind, eyes, hands and feet so as to conquer opponents, escape enemies, put down natural obstacles, and enter the struggle of life equipped for the winning of victories. The relief lies not in rose

water, but in red blood, in virile resolutions, in the skill and courage which have hitherto won the great battle of progress. It lies in the increasing intelligence of the people we wish to save, in training them to have skillful hands, swift feet, active brains, the wisdom to plan, the skill to execute. It is your privilege and mine to thus take a manful part in these coming grander days of an enlightened and uplifted humanity. The physician's call is not to a life of "inglorious ease." He must needs live "laborious days." The saints, the heroes, prophets, the poets, the leaders of men, they who have thought highest and achieved most, have suffered most because they had most to win and most to lose. There is no discharge in this war. For every place of power, for every gift of influence, for every coigne of physical, intellectual, or scientific vantage the struggle is sharp, prolonged, perpetual. But if we will interpret life according to our vision, and live according to our strength, and thus in all things proclaim the glory of the doing of duty, we shall render unto our God an acceptable sacrifice, and unto our fellowmen an inspiring service.

At the conclusion of the program Colonel William L. Prather, President of the University of Texas, was introduced and made a few remarks.

FOURTH DAY—*Morning Session.*

The Association went into executive session at 9 o'clock, the President in the chair.

CHARTER MEMBERS HONORED.

Dr. R. H. Jones, Wills Point, moved that all charter members of the Association now surviving be placed on the list of honorary members and exempted from the payment of dues.

The motion was seconded and adopted.

GOVERNOR SAYERS AND THE TUBERCULOSIS CONGRESS.

Dr. Shropshire moved that the Association endorse the action of

Governor Sayers in appointing delegates to the American Congress on Tuberculosis about to be held in New York.

The motion was seconded and carried.

THE QUESTION OF EXPENSES.

Dr. Blailock submitted the following supplemental report from the Committee on the Reports of the Secretary and Treasurer:

To the President and Fellows of the State Medical Association of Texas:

GENTLEMEN: The committee that was appointed to examine the annual reports of the Secretary and Treasurer learns with unfeigned regret that Dr. Walter Shropshire feels that in making its report that his character was reflected upon. This committee begs to state with emphasis that no such thought ever entered the minds of either member of that committee. When the reports were examined and the vouchers compared it was found that the expenses of Dr. Shropshire were paid to Austin for two visits during the sitting of the Legislature, and the expenses of Dr. West were paid to Dallas as a member of the Committee on Revision. This committee did not know of any authority for paying these bills, and as it was the duty of the committee to investigate the correctness of these reports, deemed it a duty to mention these facts. This committee was aware that Dr. Shropshire was the most active member of the Campaign Committee, was under the impression that his duties ended when the campaign had terminated, and as no other members received anything for expenses, believed it necessary to mention this fact. It was not aware that any amount had been appropriated for this purpose. The language used by the committee was as follows: "While we believe it right and proper that these gentlemen's expenses should be paid for valuable services rendered the Association, we know of no authority for paying it." This was stated for the purpose of having these accounts authorized by motion in order that the organic law of the Association should be complied with. This committee emphatically disclaims any intention of reflecting upon either of these gentlemen, and do not believe any such construction can be put on its report.

J. T. WILSON, President,
W. R. BLAILOCK, Secretary.

NOMINATION AND ELECTION OF OFFICE BEARERS.

Dr. West submitted the report of the Nominating Committee as follows:

To the President of the Texas State Medical Association:

We, your Nominating Committee, in reporting, beg to make the following recommendations:

For President, Dr. S. C. Red, of Houston, and Dr. T. J. Bell, of Tyler.

For First Vice-President, Dr. J. E. Thompson, of Galveston.

For Second Vice-President, Dr. J. E. Gilcreest, of Gainesville.

For Third Vice-President, Dr. H. K. Leake, of Dallas.

The five Trustees: Dr. F. D. Thompson, of Fort Worth; Dr. J. D. Osborn, of Cleburne; Dr. Walter Shropshire, of Yoakum; Dr. J. B. Shelmire, of Dallas; Dr. Joe Becton, of Greenville.

Judicial Council: Dr. H. A. Barr, of Beaumont; Dr. J. S. Lankford, of San Antonio; Dr. C. C. Gidney, of Granger; Dr. John O. McReynolds, of Dallas.

Publishing Committee, owing to the resignation of Dr. I. M. Cline, Dr. H. C. Haden, of Galveston.

Orator, Dr. M. L. Graves, of San Antonio.

Delegate to the American Medical Association, Dr. H. A. West, of Galveston; Dr. J. T. Wilson, of Sherman, alternate.

Place of meeting, San Antonio.

We beg further to recommend to your consideration the placing of Dr. R. H. Harrison, of Columbus, Texas, on the honorary list of the Association.

M. M. SMITH, Chairman,
H. W. CROUSE, Secretary.

Dr. Shropshire moved that the report be received, and that the Association proceed to the election of a President.

The motion was seconded and adopted, and on a ballot being taken there were found to be thirty votes for Dr. Red and fourteen for his opponent. Dr. Red was accordingly declared elected, and Drs. S. E. Hudson, S. T. Turner and W. Shropshire were appointed a committee to conduct him to the chair, a duty which they discharged amid the applause of the members.

INSTALLATION OF THE NEW PRESIDENT.

Dr. Taylor Hudson, the retiring President, said:

It affords me much pleasure to introduce to you the new President of the Texas Medical Association. I feel that in the selection you have made, you have not only honored Dr. Red, but honored yourselves. He can be depended upon to be a just and impartial and a conservative leader. His

decisions, I am sure, will be based on justice and fairness. Dr. Red, I have pleasure in handing you this gavel, which is the emblem of authority in this house.

Dr. Red said in reply:

Gentlemen of the Texas Medical Association:

My election to this high office recalls something Dr. Moore said last night about the advantage of keeping on knocking at a thing. In 1897, when the Texas Medical Association met in Paris, my name was suggested for the presidency. It was suggested again in following years at Houston, San Antonio, Galveston and Waco. So you see, that by keeping knocking at it, we have at last knocked something out. (Laughter.) Now, this position, you understand, is one of service. From the time of Aesculapius down to that of Hippocrates and Galen, and from them to the time of the great men in our own country, eminent members of the medical profession have all worked for the benefit of humanity. Their first aim has been to see what service they could render. They have served humanity, and in doing so, they have been honored. And so in my humble way do I hope to serve the public and be honored. To be President of this Association is an honor, and I wish to say that you have honored me very lavishly so far as offices are concerned. It has never, I believe, fallen to the lot of any other member to be twice First Vice-President and then President. So I am doubly honored. This is the age of concentration and combination, and by one and all of the members concentrating and combining their efforts with those of the officers, I am satisfied that this splendid organization, which has been brought on its way so far successfully, will continue to advance.

PREVENTION OF THE SPREAD OF TUBERCULOSIS.

Dr. W. S. Carter, Galveston, submitted the following report:

To the President and Members of the Texas State Medical Association:

GENTLEMEN: The undersigned committee, appointed at the last annual meeting of the Association to report upon some plan looking toward uniformity of action for the prevention of tuberculosis in Texas, beg to report as follows:

In the opinion of your committee, efforts to prevent the spread of tuberculosis should be directed (a) toward the public control of the disease, and (b) toward securing the co-operation of every practicing physician in instructing tuberculous patients and their friends of the dangers of the disease and how to dispose of the sputum without endangering the health of others.

A.—THE PUBLIC CONTROL OF TUBERCULOSIS BY BOARDS OF HEALTH.

1. It is recommended that all local boards of health declare tuberculosis to be a communicable disease; that they establish a system of registration, and require all physicians to notify the health office of the existence of every case of tuberculosis within one week after the patient comes under observation.

2. That so far as possible boards of health distribute among tuberculous patients and their friends circulars or pamphlets telling in the plainest language how tuberculosis spreads and how it may be prevented. (When requested this might be done by the visit of a sanitary inspector.)

3. That every room occupied by a tuberculous patient be thoroughly disinfected after it is vacated by either the death or the removal of the patient, and that a record of such disinfection be kept.

4. We believe that the enforcement of ordinances prohibiting spitting in public buildings, in cars, on pavements, etc., is of distinct educational value in calling the attention of the people to the dangers which may arise from promiscuous spitting.

5. It is recommended that this Association endeavor to secure the establishment of a State bacteriological laboratory with a salaried bacteriologist, so that sputum examinations may be made free of charge, thus making it possible to establish a certain diagnosis early in the course of the disease. A laboratory of this kind would also be of great advantage in making cultures from all doubtful cases of diphtheria, and determining how long such cases should be isolated.

6. In our opinion the weight of evidence is in favor of the unity of tuberculosis, and we recommend that the inspection of dairy herds supplying milk to cities be continued.

7. That it is very desirable to establish sanatoria in suitable localities for the care of indigent consumptives.

B.—METHODS RECOMMENDED IN DEALING WITH INDIVIDUAL TUBERCULOUS CASES.

1. It is recommended that attending physicians be perfectly candid in informing the patient, or at least the friends of the patient, of the nature of the disease, its dangers, and the methods of prevention. To conceal the diagnosis is an injustice both to the patient and his friends, as the former is not so careful of himself as he would be if he knew the truth, thus lowering the chances of his recovery; and at the same time is careless about expectorating, and may reinfect himself and infect those about him.

2. That attending physicians be urged to fully instruct tuberculous patients in the use of sputum cups, sputum pocket flasks, or Japanese paper napkins, so that the patient may know how to dispose of the sputum

under any circumstances, whether at home or not; that the dangers of promiscuous expectoration, the use of cuspidors and of handkerchiefs be carefully pointed out.

3. By the distribution of printed pamphlets or circulars, giving explicit directions as to the above, the private physician will usually accomplish more than by verbal instructions alone.

4. That private physicians be requested to co-operate with the board of health in every way, and especially in reporting every case of tuberculosis who, through ignorance or carelessness, disregards instructions as to the disposal of sputum.

Respectfully submitted by

W. S. CARTER,
ALLEN J. SMITH,
WALTER SHROPSHIRE,
F. PASCHAL,
DAVID R. FLY,
Committee.

DR. WEST: I move that the report be received and adopted.

DR. M. M. SMITH: I move, as an amendment, that it be referred to the Committee on Board of Health, with instructions to act upon it by getting up a circular of information and having reprints prepared of the address of the chairman of the Section on State Medicine, Dr. Carter, and the excellent address on the duty of the State to the people, which was delivered the other night by Dr. Daniel. My amendment is as follows: "That the report of the Committee on the Prevention of Tuberculosis be adopted as read, and that the committee of this Association on State Board of Health and Vital Statistics be authorized to put into execution, so far as they deem advisable, the recommendations made therein, and they further be instructed to have reprints made of the report of Dr. W. S. Carter, as chairman of Section of State Medicine and Public Hygiene, and the paper read by Dr. F. E. Daniel on "The Paramount Duty Texas Owes to Her People," also preface brief circulars on the prevention of the disease and distribute same, and that this Association reimburse said committee for actual moneys expended in performance of said work.

DR. FRANK PASCHAL, San Antonio: I would impress on the Association the importance of legislation for the prevention of tuberculosis, and with the view of showing its necessity, I will submit some facts and figures that I have gathered during the careful study of the mortuary returns of San Antonio in the last thirty years. The figures have been gone over three times so as to ensure their accuracy, and I think anything I say may be relied on. I have here a record of the deaths of every one who has died, white and black, and will quote a few figures to show that tubercu-

losis has spread and is spreading at a most rapid rate among the people in this part of the State. In 1870 there were eighteen deaths from tuberculosis in San Antonio, or 1.4 for every thousand of the population. At that time San Antonio was isolated; there were no railway connections with the place, and it had not yet been made a health resort. By 1880, the condition of things had changed. Railways had been introduced, and the city was widely advertised as a health resort. The result was that the deaths from tuberculosis rose to 3.3 for every thousand of the population. By 1890 it had increased to four and a fraction, and by 1900 it had gone up to six in a thousand; so that we have had an increase of six hundred per cent. in the brief period of thirty years. You may say that all these were probably new-comers, who came to San Antonio afflicted with the disease. Not so, according to the statistics, for of the total number who have died from tuberculosis in San Antonio during the last thirty years, it appears that forty and a fraction per cent. had lived in the city one year and under, whereas sixteen per cent. had lived in the city for ten years, and thirteen per cent. for longer periods. What does this mean? We know that the natural duration of tuberculosis is from two to seven years, rarely as long as ten years. So that it follows that all those who had lived in the city ten years and over must have contracted the disease in the community in which they lived. In 1890 the ratio of mortality showed that twenty-six per cent. of the total number of persons who died from tuberculosis had lived over ten years in the city—over a fourth of the entire number. I cannot say exactly how long they had lived in San Antonio, but it was over ten years at all events. In 1890 there were twenty-three deaths from tuberculosis of persons who had lived ten years and over in the city, and in 1900 there were eighty such deaths; an increase of three hundred per cent. Again I find that the relative increase in the mortality as between whites and blacks to be thirty-nine per cent. in whites and fifty-nine per cent. in blacks. Among the blacks there were three deaths in 1890, while in 1900 there were twenty-three deaths; an increase of six hundred per cent. in ten years. These are the simple facts, and when you consider that the lives of our people are far more precious than all commercial values it behooves every man to speak the truth in regard to communicable diseases. I have as high a regard as any one for commerce and commercial interests, but when I hear it said, "Don't let these facts be known, because they may be injurious to the interests of the city," I say, gentlemen, if you are willing to sacrifice the lives of your wives and children for the sake of commerce, then God save the mark. I say let the truth be known and legislation enacted to stop the spread of the disease in San Antonio and throughout Western Texas and the State generally. We need it, and we must have it. Now, another fact. One fifth of the entire number of deaths in San Antonio in the last

five years took place in the city hospital—practically all of them being absolute paupers, and I do not believe that one tenth of these were people who belonged to the State. They belong to the class who flock here in large numbers from other parts, and say "You must take care of us; if you do not take us into your hospitals, we will sit down on your steps or in the streets." These people we have to take care of until they die or go away and menace other communities with the spread of their disease. It is not right that we should have this duty imposed upon us. It is the plain duty to the State of Texas to build an institution for indigent consumptives. Once provision is made for isolating these people, there will be a stop put to this promiscuous immigration of persons who come from all parts in search of health, because the very day that they know that they will become wards of the State, and that, as a consequence, they will be restrained of their liberty, they will cease coming, because they hate above everything to be huddled together. If the State once establishes such an institution, you will no more be able to get them to come to Texas than you would get them to face a mad dog. As soon as an institution of this kind is established, and you begin to keep out this reckless element, you will find that a step in the right direction has been taken. Then, but not till then, the spread of tuberculosis will be in some measure checked. Without such an institution all your ordinances will be of no avail. You must stop the disease at its source, which is the influx of these indigent consumptives. We can look after the intelligent and fairly well-to-do patients who come to us. It is these reckless indigent consumptives who cause all the trouble, and while I would not be understood as wishing to put a pebble in the way of a man anxious to recover his health, I say it is our first and foremost duty to look after the health of the community.

DR. W. S. CARTER: I move, as an amendment to Dr. Smith's motion, that the literature to be prepared by the committee include also pamphlets telling the people in plain language what steps should be taken for the prevention of the spread of tuberculosis. A vast deal of good is being done in this direction in New York, Pennsylvania, and other States where there are societies for the prevention of tuberculosis. In the pamphlets issued by these bodies it is stated so plainly that he who runs may read how tuberculosis is spread and how its spread can be prevented. I would like to see such pamphlets distributed among the members of this Association and the community generally. I believe the greatest good we can do is through the education of the people, and the best way to secure that is through the private practitioner. But we cannot depend on that alone. The cases referred to by Dr. Paschal show that the starting point must be the registration of all those who are suffering from tuberculosis. It must be declared a communicable disease, and every case should be reported to the local board of health. San Antonio has set a good example in this

respect. While it is a health resort, and the necessity for the adoption of precautionary measures are consequently greater than elsewhere, there are few places where similar regulations might not do good. In a visit I paid some time ago to Denver, I was impressed with the difficulty they had in securing action for the prevention of the spread of this disease. They seemed to be afraid to enact a law that would have the effect of preventing tuberculous patients going there. They were not as candid as Dr. Paschal was about San Antonio, and the conclusion I arrived at was that they were doing a great injustice to their own people. Statistics have been published showing that twenty-six per cent. die of tuberculosis in Colorado, and even higher percentages, I believe, have been shown by later statistics. Candor is necessary in dealing with the condition of affairs by which we are confronted. I therefore move that the Committee on Public Health be authorized to prepare circulars telling how tuberculosis is spread and how its spread may be prevented.

DR. WEST: I think we ought to understand the limitations of this motion. There is no telling what the expense might be. If we were to send out circulars to all the inhabitants of Texas, it would certainly be considerable. We ought not to saddle ourselves with responsibilities without knowing what we are doing. There is no doubt at all about the good it would do.

DR. SMITH: I feel confident that the committee will not put the Association to any great expense. I have no objection to a limit being mentioned, only I do not think it is necessary.

DR. WEST: I move as an addition to the motion, "Provided, the expense does not exceed $50."

DR. CARTER: I move that it be $200.

DR. SMITH: We have two or three delegates going to the Tuberculosis Congress at New York. We had an international congress in London attended by many physicians from this country. A great deal of money is everywhere being spent on this work, which is the most important that can be done for the good of humanity. Under these circumstances for the great State of Texas to propose to expend a paltry sum of $50 seems to me to be nothing less than an outrage. I hope it will be made $200 at least. We have money in the treasury. I think it would be well for the members to know exactly how much we have before they are called on to vote on this question.

DR. WEST: I quite agree as to the desirableness of the object; it is not the State of Texas which is called upon to make the expenditure, and I question whether the Association can afford to pay $200 for this particular purpose.

The Treasurer, Dr. Miller, being asked what he thought the Association could afford to spend on this matter, said the question was one he could hardly be expected to answer, but as to the actual state of the finances, he might say that after the bills on hand were paid there would probably be a balance of about $2,000.

DR. THOMPSON, of Galveston: I move that we make the appropriation $500.

DR. MILLER: I would remind the Association that the expenses will be unusually heavy in connection with the publication of the Transactions, and the Association will be in danger of going broke if we go throwing money at birds. I have worked hard to get the finances into good condition, and I should regret to see the treasury emptied.

DR. SMITH: I understand we have approximately $2,000 in the treasury. Now, the Association has agreed to pay the expenses of a delegate to the meeting of the American Medical Association, which is not nearly so important a matter as this. Now is the time to begin this educational work. I feel confident that the committee will not spend the money if it is not necessary, but it would be a disgrace to the State to offer a miserable appropriation of $50. I would hate for our delegates to the Tuberculosis Congress in New York to have to go and say that the Texas Medical Association had made such an appropriation.

A MEMBER: I beg to move that all the amendments be laid on the table and the committee left free to spend what they see fit.

DR. PASCHAL: We assemble here year after year for no other purpose than the prevention of disease, and no more important matter could engage our attention than the adoption of steps to stop the spread of tuberculosis, which causes more deaths than any other disease. We come here at an individual expense of say $100 in addition to the sacrifice of time and labor. Still we are not willing to appropriate the paltry sum of $200.

Dr. West then agreed to accept the amendment substituting $200 for $50 as the limit of expenditure, and the motion with this alteration was adopted.

INSTALLATION OF THE FIRST VICE-PRESIDENT.

Dr. J. E. Thompson, Galveston, the newly elected First Vice-President, having entered the room since the election of officers, was now espied by the President, and at his request conducted to the platform.

Dr. Thompson said:

I assure you it is a great pleasure to me to be put in such a position as this. The honor was most unexpected. I never dreamed of being placed in such a high position. I feel proud of it, and especially after what I have heard this morning. We of the medical profession are sometimes not understood by the commercial element in the community. They judge us by their own standards. Whenever we seek any legislation, they think we are looking after our own pockets. It is difficult to convince them that we are altruistic in any respect. I should very much like this discussion to be widely circulated, so that it might become known that the physicians of San Antonio are working against their own interests in order to promote what they know to be the good of the community. I would have been glad if instead of $200 we had been able to spend $200,000. (Cheers.) We are apt to forget what a terrible thing tuberculosis is. Cholera comes and causes a scare. So do yellow fever and typhoid. Yet tuberculosis is killing two for one. It is in our families, and unless we fight it and assist the pepole to fight it, we will never get any better. It is the most important matter with which we could deal, and I am very much delighted to be the First Vice-President of an association that has taken action with a view to grappling with the evil.

VOTES OF THANKS.

DR. P. C. COLEMAN: I beg to move the following resolution:

Resolved, That we, the members of the Texas State Medical Association, express our profound gratitude to the profession and the people of Dallas for their courtesy and many acts of kindness shown us during our stay in their midst, and especially do we feel grateful to the Committee on Arrangements for the elegant program which we last evening so highly enjoyed at Carnegie Hall.

The motion was seconded and agreed to.

Dr. West moved that a vote of thanks be accorded the local press for their excellent reports of the meeting, and that they be requested to publish the papers of Drs. Carter and Daniel and the speech of Dr. Paschal in regard to the prevention of tuberculosis.

The same was seconded and adopted.

Dr. C. M. Rosser moved a vote of thanks to the retiring officers for their efficient services.

The motion was seconded and carried.

AN OSTEOPATH ASKS A HEARING.

At this point a gentleman who gave his name as Dr. Terrell and was said to be a local practitioner of osteopathy, said he had spoken to a member of the Association about the possibility of his being allowed to make a statement. He desired to explain the course of study it was necessary to go through before one could become an osteopathic physician.

The President said that as the gentleman was not a member of the Association it would be necessary for him to be introduced by a member.

Dr. Terrell then resumed his seat.

At a later stage in the proceedings, Dr. S. R. Burroughs arose and said:

In view of the fact that science does not meet with closed doors, and that we do not desire to shut out knowledge derived from scientific investigation of any kind, in view, also, of the general desire of the members not to exclude any one who is engaged in serious inquiry, I beg to move that the gentleman who represents the osteopaths be allowed a hearing, in order that he may state the tenets of his system.

A MEMBER: The gentleman has gone.

DR. BURROUGHS: We claim to do our work in daylight, and it will tell against us if it is to go abroad that we refused this man a hearing. The door should not be closed against him.

THE PRESIDENT: The door was not closed against him. I simply said he would have to be introduced by a member.

DR. BURROUGHS: Under the present law we are bound to admit anyone to an examination, no matter where he has studied medicine, or whether he has studied it at all. Of course we are not compelled to give him a certificate. That is another matter. But it does not matter whether a candidate for examination ever saw a college or not, he would be entitled to be examined. If an osteopath applied, we could not deny him that right. Therefore, I move that we extend this gentleman the courtesy of the floor and hear what he has to say.

Dr. Hudson seconded the motion, which was agreed to, but it was found that the gentleman had left the hall.

COMMUNICATION FROM THE WOMEN'S CHRISTIAN TEMPERANCE UNION.

Dr. West read the following communication from the Texas Woman's Christian Temperance Union:

To the Physicians of Texas:

The Texas Woman's Christian Temperance Union of Texas has been combating the evils of alcoholic liquor drinking for twenty years.

The National W. C. T. U. has been leading in the same warfare for twenty-eight years. Among our most effective allies have been those physicians who do not prescribe alcoholic liquors, allowing alcohol a very limited sphere of usefulness, or none at all.

We are endeavoring to bring the teachings of such physicians to the people, and we believe that much good is being accomplished thereby. It is apparent, however, that if the evils of liquor drinking (ill health, poverty, insanity and crime) are ever to be fully abated, the medical profession must take a more active part in this much desired reform. They, more than any others, can disabuse the public mind of old time errors concerning the use of or necessity for alcohol, either as a beverage or for medical purposes. It would seem to be the duty of those to whom the public looks for guidance in all things pertaining to health, to continue to make the most careful investigations of the nature of alcohol and its effects upon the human system, and to see to it that their personal example is upon the side of safety.

The New York School of Clinical Medicine, a post-graduate college for physicians, has just now opened a new department for the study of the constitutional effect of alcohol and other drugs.

An eminent Russian physician, in a paper read before the International Medical Congress, held at Moscow, August, 1897, said: "The struggle against alcoholism merits as much attention on the part of the medical profession as that against the various epidemics, and the success of the struggle is impossible without the active sympathies of the medical profession."

Realizing the truth of the foregoing statement, the Woman's Christian Temperance Union, at the beginning of the new century appealed to physicians to aid in the effort being made to remove as far as possible all tendencies and temptations toward the formation of the drink habit. The medical profession can wield a powerful influence by bringing to the knowledge of the people the consensus of scientific opinion and practical observation on the disastrous results which follow the habitual and indiscriminate use of alcohol for any purpose.

Particularly would we ask physicians to warn parents against the home

prescriptions of alcohol and against the use of proprietary medicines containing alcohol or other narcotic drugs, by showing them the danger and by teaching them a better way.

We respectfully ask that this appeal be published in the medical journals of Texas, and that you bring it before your body now in session for discussion.

With profound respect for your honorable profession, and with the hope for your active co-operation in the work, we are,

Sincerely yours,

MRS. HELEN M. STODDARD,
State President.

MRS. MINNIE KIRTLAND,
State Corresponding Secretary.

Dr. Nichols, Greenville, moved that the communication be received, and referred to the Publication Committee, with instructions to publish it in the Transactions.

On a division the motion was carried by a majority of 19 to 9.

PROPOSED OLD WOMEN'S HOME.

Dr. West said he had received a communication from Mrs. N. B. Kennedy in regard to the efforts she and others were making to establish an Old Women's Home in Dallas, and requesting the endorsement of the Association for the movement. He moved that the Association express its approbation of the worthy efforts being made by these ladies.

The motion was seconded and adopted.

NEW MEMBERS.

The Judicial Council reported the election of the following new members:

Dr. W. H. Baldridge, Wylie; Dr. Henry Redmond, Corpus Christi.

CHAIRMEN AND SECRETARIES OF SECTIONS.

The following were announced as the gentlemen who had been selected to fill the offices of chairmen and secretaries of the different Sections for the ensuing year:

General Medicine. Chairman, W. C. Blalock, Kosse; Secretary, J. T. Moore, Galveston.

Obstetrics and Diseases of Children. Chairman, J. C. Anderson, Granger; Secretary, C. E. Cantrell, Greenville.

Surgery. Chairman, W. Keiler, Galveston; Secretary, I. P. Gunby, Sherman.

State Medicine. Chairman, Frank Paschal, San Antonio; Secretary, H. W. Crouse, Victoria.

Gynecology. Chairman, J. Smoot, Dallas; Secretary, H. Taylor, Marshall.

Ophthalmology. Chairman, Henry C. Haden, Galveston; Secretary, W. A. Harper, Austin.

Dermatology. Chairman, W. B. Russ, San Antonio; Secretary, H. B. Decherd, Galveston.

Medical Jurisprudence. Chairman, J. R. Nichols, Terrell; Secretary, R. B. Sellers, San Antonio.

Pathology. Chairman, A. J. Smith, Galveston; Secretary, J. M. Frazier, Belton.

The Secretary called the attention of the Chairmen of Sections to the fact that a number of gentlemen to whom certain subjects had been assigned at the present meeting had not put in an appearance. It was very desirable in making arrangements for next year's meeting that no assignments should be made except on the understanding that those accepting them were tolerably certain of their ability to be present at the meeting.

THE SAN ANTONIO MEETING.

DR. PASCHAL: On behalf of San Antonio I extend to you my thanks for selecting that city for the next meeting of the Association, and extend to each and every member a hearty invitation to come and partake of the hospitality that our citizens will be prepared to show them.

THE PRESIDENT: I want to urge upon you all to come to San Antonio. Buy tickets or get passes, but at all events come. And another thing. Bring your wives along. If you have not got a wife, get one. (Laughter.) I cannot say that San Antonio will treat us better than Dallas has done. That would be impossible, but it will give us an antiseptic reception, or at all events an aseptic one; and I think we can all depend on having a good time.

Dr. Shropshire said it was understood that the Pharmaceutical Society was going to meet at the same time and place, and that

arrangements were to be made for a joint session on Materia Medica.

Dr. West said that he would attend to the arrangement of this joint session.

THE OSTEOPATH MATTER.

DR. M. M. SMITH said: At an earlier stage in the proceedings a gentleman wanted to make a resolution or some statement in regard to osteopathy. At the time he was not allowed to speak, but later on it was agreed to grant him the courtesy of the floor. Then, unfortunately, it was found that the gentleman had gone. It would be unfortunate if any erroneous impression went abroad in regard to this matter, and, therefore, I think the local press should be informed of the facts, and requested to give them publicity. Our new law, as has been said, permits anyone to go before the Board of Medical Examiners and demand to be examined with a view to securing a certificate to practice medicine. It was not our purpose to shut off this gentleman. We were all, I am sure, desirous of hearing what he had to say.

THE PRESIDENT: I certainly had no idea or intention of shutting off any one.

ELECTION OF AN HONORARY DAUGHTER OF THE ASSOCIATION.

DR. M. M. SMITH: I beg to move that the beautiful and accomplished daughter of the retiring President, who has graced this meeting with her presence, be elected honorary daughter of the Association.

The motion was seconded and agreed to with acclamation.

DR. TAYLOR HUDSON: On behalf of my daughter, I beg to thank you for the unexpected honor that has been conferred on her. The position, so far as I know, is a new one, and we will have to find out what duties pertain to it. (Cheers.)

THE MINUTES READ BY CAPTION.

Dr. West moved that inasmuch as the minutes had been taken by a stenographer and had not been extended they be read by caption and approved.

DR. SHROPSHIRE: I hate to bore the Association any further with a matter personal to myself, but I would like to ask that that part of the committee's report, which contains the misstatement in regard to my not

being a member of the Campaign Committee, be expunged. I beg to move accordingly the following resolution:

"*Resolved*, That from the minutes of this Association that portion of the Committee on Secretary's and Treasurer's Report, which states that Dr. Shropshire was an invited guest of the Legislative Committee and charged his expenses for attendance, be omitted."

Dr. West accepted the amendment, and the motion as amended was adopted.

SAN ANTONIO AND THE NEXT MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

DR. M. M. SMITH: There is one very important matter. The city of San Antonio, as we know, has invited the American Medical Association to hold its next meeting in that city, and it seems to me that it would be well to arrange for a little concerted action on the part of the medical profession and the municipal and State authorities to strengthen the hands of our delegate to Saratoga. Now, Dr. Paschal, the zealous health officer of San Antonio, is about to go to New York to attend the Tuberculosis Congress as the official representative of Texas, and it has occurred to me that he might render invaluable service if he were permitted to remain in the East until the holding of the meeting of the American Medical Association. I therefore move:

The Mayor and City Council of San Antonio, Texas:

The Medical Association of Texas in convention assembled unanimously requests your honorable body to extend the leave of absence of your Health Officer, Dr. Frank Paschal, who represents this State and Association as a delegate to the American Congress for the Prevention of Tuberculosis, so that he will be able to attend the next meeting of the American Medical Association, which meets in Saratoga Springs, New York, on June 10, 1092, so that he will be able to invite the Association in person to hold its next annual meeting in San Antonio, Texas, and render other valuable service for the city of San Antonio, this Association and the State of Texas.

Resolved further, That the Governor of the State be requested to officially invite the American Medical Association to hold their annual meeting for 1093 in San Antonio, Texas; that the President of the University of Texas be requested to do the same and that the Secretary of this Association, who is our official delegate, be instructed to prepare brief data about Texas in reference to population, number of physicians, universities, hospitals, sanitariums, health resorts in the State, and any other information he may deem neccessary to aid in bringing said Association to Texas.

DR. WEST: I beg to move, as an amendment, that Dr. Smith be requested to prepare the papers giving the desired data in regard to Texas, and that he transmit them to the Secretary.

Dr. Smith pleaded want of time, but the amendment was adopted, after which the original motion was put and carried.

The Association then adjourned to meet in San Antonio the fourth Tuesday in April, 1903.

Minutes approved.

H. A. WEST, Secretary.

S. C. RED, President.

PAPERS READ

BEFORE THE

THIRTY-FOURTH ANNUAL MEETING

OF THE

STATE MEDICAL ASSOCIATION OF TEXAS,

HELD AT

DALLAS, TEXAS,

MAY 6TH, 7TH, 8TH AND 9TH, 1902.

SECTION ON GENERAL MEDICINE.

CHAIRMAN'S ADDRESS.

J. W. SCOTT, M. D.,
HOUSTON, TEXAS.

Mr. President and Gentlemen:

It is a time honored custom of the State Medical Association for the Chairman of this Section to report upon the progress made in medicine during the past twelve months. I shall follow this custom only partially, inasmuch as my paper shall be devoted exclusively to the discussion of the progress made in the study of tuberculosis and yellow fever. I do this for two reasons:

First—So much experimental work has been done, so many new ideas have been advanced, that an attempt on my part to treat of them in their entirety would prove too great a tax upon your patience.

Second—The diseases of which I shall speak are of such paramount importance, particularly to the State of Texas, that I believe it would be well to devote all the time allowed me to their consideration.

Necessarily I will be compelled to thresh over old straw to some extent, but as far as possible what I say will be limited to those points, the importance of which has been emphasized by recent researches, or concerning which there has recently been a change of opinion.

With these prefatory remarks, I will now invite your attention to some late observations on the etiology of tuberculosis. For many years alcohol has been regarded as being in some way antagonistic to tuberculous disease, and physicians have been in the habit of dosing their patients with large quantities of whiskey or brandy. The elder Flint used it freely in his practice, and had an implicit faith

in its efficacy. Recent observations indicate that the reverse of this belief is true; that alcoholism instead of antagonizing, strongly and specially predisposes to the contraction of tuberculosis. The experiments of various investigators show that the administration of alcohol to animals invariably renders them more susceptible to tubercular infection. It seems to weaken the resistance of the organism, and to lower its vitality, thus favoring the action of the invading microbes and enabling them to develop and grow. Dr. Brouardel, of Paris, a few months since, declared it to be his conviction that the etiological relationships between alcoholism and consumption was very close, and that alcohol was the most potent factor in propagating this disease. According to one observer eighty per cent. of fatal cases of alcoholic neuritis and twenty-three per cent. of the cases of common cirrhosis of the liver showed pulmonary tubercular infection. The commission appointed by the French parliament to investigate consumption in France made its report about the first of this year. In this report it is positively asserted that alcohol makes the best bed for tuberculosis, and that the districts of France which are the greatest centers for this affection are those in which there is the largest consumption of spirits. Physicians in Italy, Germany and other countries who have studied the subject have reached the same conclusions. It can, therefore, be considered now as an accepted fact, that alcohol is not antagonistic to tuberculosis, but, on the other hand, predisposes those who drink it immoderately to the development of this malady.

During the past few months a very heated discussion has been in progress concerning the connection between human and bovine tuberculosis. At the Congress, in London, held in July of 1901, Prof. Robt. Koch stated it to be his opinion that they were entirely distinct diseases; that his experiments proved human tuberculosis can not be transmitted to cattle, and from observations he was convinced that a transmission from cattle to man, through milk or meat, was very rare and not worth considering.

The sound of Prof. Koch's voice had hardly died away in St. James Hall when Lord Lister uttered words of strong protest. Since then there has been a steadily rising tide of opposition to the

views expressed by Dr. Koch. Prof. E. Nocard is opposed to them. So is Thommassen, Ravenel, Salmon, Jacobi, Arloing, Janeway, Grawitz, Muller, Ballinger and innumerable others. The English Congress at the termination of its labors, among other resolutions, adopted one to the effect: That medical officers of health should continue to use all the powers at their disposal, and relax no effort to prevent the spread of tuberculosis by meat and milk. The American Veterinary Medical Association passed a similar resolution at its last meeting. So it can be safely said that the great preponderance of medical authority at the present time contends that bovine tuberculosis can be transmitted to man. The arguments brought forward in favor of this contention are as follows:

First—The bovine tubercle bacillus is pathogenic for diverse species of animals, in fact it has proven virulent for all quadrupeds to which it has been administered. According to the experiments of Schweinitz and Schroeder it is pathogenic for the different varieties of the monkey—man's first cousin. Such being the case, they argue, it is reasonable to suppose that man is also susceptible to its pathogenicity. Particularly, as it is well known, that every other disease-producing bacteria which has proven pathogenic for several different animals has also proven to be so for man.

Second—Tuberculin made from bovine cultures produces in cattle and human beings suffering from tuberculosis reactions exactly similar to those produced by tuberculin made from human cultures.

Third—Quite a number of cases of abdominal tuberculosis have been reported by Demme, Oliver and others, that can be traced directly to the milk supply.

Fourth—There are eight cases on record in which veterinary surgeons have contracted local tuberculosis from an injury to the finger received while making an autopsy upon a tuberculous cow. In one of these cases the disease became general and the patient died.

The arguments of those who favor the views of Prof. Koch may be summed up as follows:

First—In severe and long continued sickness physicians have from time immemorial been in the habit of prescribing a diet consisting of milk and beef juices, both of which are very frequently

infected with the bovine tubercle bacillus. Now, if this bacillus is pathogenic for man, it should certainly demonstrate its virulency under such favorable circumstances, and primary tuberculosis of the intestines should as a result be one of our most common pathological conditions. Instead of this, however, it is one of the rarest. Koch says in his entire experience he only recalls two cases. Holt remarks upon its great infrequency in his book upon diseases of children. At the Charity Hospital, in Berlin, only ten cases occurred in five years. In 3104 autopsies upon tuberculous children Biedert only found sixteen cases. Furthermore, we are not warranted in ascribing even these few cases to the bovine, rather than to the human bacillus, inasmuch as either may gain an entrance to the intestinal canal.

Second—Prof. Baumgarten describes some experiments made by Rokitansky several years since, in which patients suffering from inoperable malignant tumors were inoculated with the germs of bovine tuberculosis without a single case becoming infected.

Third—If the bovine bacillus is pathogenic for man, tubercular affections should be more common among butchers, dairymen and people who drink raw milk, than among other classes; but the reverse of this is true, hence it is argued that the infection is very rarely transmitted from cattle to man.

After reviewing all the evidence on both sides of this question, I am forced to the conclusion, that while the majority of investigators are opposed to Prof. Koch in his views, the greatest number of facts in the case seem to support him. More experimental work, however, must be done before this question can be definitely settled. At the present time there are two commissions at work upon it, one appointed by the King of England, the other by the Emperor of Germany. It is to be hoped they will reach a satisfactory solution of the problem before making their report. In the meantime I believe it would be well to continue enforcing all laws that now regulate the inspection of cattle, meat, and milk.

DIAGNOSIS.

According to the latest statistics one-third of all people at some time of their life suffer from tuberculosis. Seventy per cent. of all

cases are curable in their incipiency; only fifteen per cent. are curable in the second stage, while those still further advanced almost invariably prove fatal. These figures serve to emphasize the great importance of an early diagnosis. During the past year the agglutination test of Arloing and Courmant has been tried by various investigators, the majority of whom have reported adversely as to its value for diagnostic purposes. It is claimed a reaction will occur in other diseases often as it will in tubercular affections. Further experiments must be made along this line, however, before any positive opinion can be reached as to the reliability of this test. Additional evidence of the usefulness of tuberculin in the early diagnosis of consumption has been furnished within the past few months. At the present time the profession is unanimous in its opinion of this preparation, and its great value as a diagnostic agent may be considered an accepted fact. In discussing this question before the British Congress, Prof. Osler, of Baltimore, said he had been using tuberculin for six years, and considered it of inestimable value in the diagnosis of phthisis in its earliest stages. He further stated that in his experience it had proven uniformly harmless, with not a single instance of any bad result. All of those present coincided with Prof. Osler in these opinions.

In the use of tuberculin for diagnostic purposes some experimenters begin with small doses and repeat only every three days. By so doing they are liable to create a tolerance, and thereby miss the reaction or temperature rise. Others, on the other hand, prefer to give a single large dose, but in doing this they run the chance of producing too great a constitutional disturbance. The middle course is undoubtedly the best. Start with a medium dose, say one mgr., if no rise of temperature follows, wait two days and then administer an amount double that first given. At each subsequent administration continue to double the preceding dose, until ten mgr. is reached, provided you do not get satisfactory evidence of infection before that time.

The use of tuberculin should be limited to those cases in which the diagnosis is doubtful and not otherwise recognizable. J. M. Anders reports that he has administered it in 1468 cases of this

character, and obtained the reaction in seventy per cent. of them. The subsequent history of these cases proved the test to have been sufficiently accurate for all practical purposes. Dr. Anders considers the use of tuberculin, as an aid to the diagnosis of the prebacillary stages of phthisis, one of the greatest advancements of modern medicine.

Again, every case of pleurisy should be subjected to this test, after the febrile symptoms have all disappeared. According to the experience of Prof. Koch seventy-two per cent. of such cases has given a typical reaction. Tuberculin assists in the diagnosis of phthisis in the prebacillary stage in still another way. It intensifies the local lesion, and thereby accentuates the physical signs, bringing them out more clearly and distinctly.

The X-ray as a diagnostic agent in this disease has recently been highly recommended by a few observers. We are unable to see, however, in what manner, even in the hands of an expert, it can be of any use, except in cases where considerable infiltration has occurred, and then the diagnosis becomes a very easy matter by much simpler methods.

TREATMENT.

Tuberculosis is a preventable disease, in that it is due to a germ, the characteristics of which are thoroughly understood. We shall now consider those preventive measures that have come into the foreground of late. One of the most important of these is the law against promiscuous expectoration. It is an accepted fact that the sputum of consumptive people is the main source of infection. According to the report made by the French commission a few months since, the air which a phthisical patient expels does not contain the germs. It is the sputum dried and pulverized that carries the contagion. It is also contended by this commission, that the sputum clings to the walls, furniture and floor of a room for months and even years.

Recent experiments by Peterson demonstrate that flies are indirectly also a source of danger in the transmission of tubercular affections. He found that flies always contained bacilli in their

intestines, after they had lighted upon sputum. He dissolved the excrement of fifteen flies in water and produced tuberculosis in guinea pigs by spraying them with the mixture. These facts emphasize the great importance of disinfecting the expectoration of consumptive patients. The spitting ordinances, which have become so popular of late, is undoubtedly a step in the right direction. We are glad to see that several of the large cities in this State have taken this matter up, and that there is a growth of public sentiment against expectorating in the streets and in public conveyances. We are also pleased to note that the State Health Department has issued an order that all passenger coaches be supplied with cuspidors containing strong solutions of corrosive sublimate.

Quite recently a very enthusiastic health officer in a Northern city attempted to have a law passed requiring ladies to wear short dresses. He argued that a long skirt trailed in the dust, and caught up the bacilli of tuberculosis, thereby becoming a focus of infection in every home. We believe his position to be an eminently correct one, but doubt if anything but style will ever regulate the length of a ladies' skirt. Even if such sanitary enactments are not strictly observed, they serve a useful purpose in educating the people concerning the dangers of the sputum from a consumptive patient.

NOTIFICATION.

Tuberculosis is an infectious disease, and being such every case of it should be reported to the local health authorities. The room a consumptive occupies is a focus of infection. The dust which settles from the atmosphere of such a room is infective, and retains that quality for months after the patient has left. To prevent the spread of this disease, these different foci of infection must be destroyed, and thus obligatory notification becomes a necessity. New York and Jersey City have already realized this fact; so has also the entire State of Connecticut. It is high time for Texas, particularly the western part of it, to at least reflect upon the importance of such a measure.

DISINFECTION.

When a consumptive dies, or changes his residence, the room he occupied should be thoroughly disinfected. Hotels, boarding houses and other public institutions are gradually of late being required to observe this precaution. Railroads should be forced to do the same, for they are possibly the greatest conveyors of tubercular disease. The foulest room in the slums of a large city does not contain more pathogenic filth than a Pullman sleping car, and the ordinary day coach is only a few degrees better. They seem to have been made with this object expressly in view. Think for a moment of the thickly covered plush seats, of the elaborately carved woodwork and the heavy non-washable hangings, and tell me if the purpose had been the propagation of disease could the plans of construction have been better? In view of these facts it is needless to say that frequent and efficient disinfection of all passenger coaches should be compulsory and under government supervision. The disinfection of the sleeping car, however, as it exists today, is a very difficult matter, and railroad companies should be compelled to have them built hereafter along hygienic lines.

SANITARIUMS.

The establishment of sanitariums for consumptives has received considerable attention during the past year, and the opinion is steadily growing that this is the most effective method of curing and preventing a spread of the disease. England may be said to have inaugurated the movement, and it afterwards extended very rapidly over all of Europe. This country is falling in line gradually. New York, Massachusetts, Illinois, California, Maryland, Ohio, North Carolina, Alabama, New Mexico, Connecticut and Pennsylvania already have such institutions, and several of the other States have them under consideration. What about Texas? As usual, she has none, and, furthermore, is not considering any to my knowledge. But what else can you expect from a State that has always been traveling fifty years behind the times in everything pertaining to public health? The advantages of the sanitarium treat-

ment are many. The patients are constantly under the supervision of the doctor or trained attendants. He is served with the proper amount of proper food and his rest and exercise are regulated according to the requirements of his individual case. He is made to sleep in a well ventilated room, and to appreciate the great importance of fresh air and sunshine. He is not allowed to expectorate except in receptacles containing antiseptics. He is taught the necessity of cleaning his room without raising the dust, and of disinfecting everything that becomes contaminated with his sputum. Residence in a sanitarium is an education in hygiene, and thus proves a benefit not only to the patient, but indirectly to his neighbors and the public at large. It teaches a person how to so live as not to be a constant source of danger to those around him. Bowditch, in giving his experience with the sanitarium treatment in Massachusetts, says: Patients from these institutions upon returning home distribute the acquired notions in regard to the hygiene of this disease. He gives a striking instance of this where a man, whose recovery excited the interest of his neighbors, began a crusade against the unhygienic methods which he found around him. Before long there was scarcely a family in the street where he lived that was not following his instructions. Bowditch claims that of the incipient cases discharged during the last year, seventy-nine per cent. were arrested, and that relapses were comparatively rare. These results are truly remarkable, especially when we consider how unfavorable the climatic conditions in Massachusetts are to the cure of this disease.

MEDICAL TREATMENT.

The experiences of the past year emphasize the fact that up to this good day there is not any specific for tuberculosis. The best proof of this is the large number of drugs used in its treatment. McGuire recommends the intravenous injection of formaldehyde and reports good results in seventy cases. The danger of this remedy, however, will outweigh any good to be derived from it. Bughart uses inhalations of 2.5 per cent. solution of formalin and gradually increases the strength. Landerer claims many patients

improve rapidly under the use of cinnamic acid and its salts. He ascribes the improvement to the leucocytosis produced.

Thiocal and sirolin have been tried and found of no particular value. Krokiewicz has been using injections of hetol and his results are rather unfavorable. Several investigators think igasol produces the most satisfactory effect of all the gaseous antiseptics upon the respiratory tract. Harper advocates the use of urea in conjunction with a diet of such food as is rich in this substance, like kidney, liver or brains. He argues that tuberculosis rarely ever occurs in persons subject to gout and attributes this immunity to the presence of urea.

A. Schenk claims that the bacillus attacks that part of the lung where the circulation is most deficient, usually the apex. He recommends a mechanically induced hyperemia as the best treatment. He accomplishes this by having his patient lie on an inclined plane with the feet higher than the head a certain number of hours every day. Tuberculin, which has been so long discredited, has again, during the past year, advanced to the front in the estimation of the profession. Phœnix-like it has arisen from its ashes and now heralds the dawn of a brighter day, in the treatment of tuberculosis. Pottenger, after a careful review of this remedy, reaches the following conclusions:

First—Culture products do have a specific action upon tuberculous foci; the reason this has not been recognized is due to the early unfortunate experience with tuberculin. The field of usefulness for culture products is where recent tubercles are found, and this especially in incipient cases. Culture products will help remove areas of recent extensions, but must not be expected to remove dead, decaying or newly formed tissue.

Second—When culture products are used they should be reinforced by every means at command.. Every phase of the patient's health should be cared for, and the proper hygienic and dietetic measures prescribed. When the case is managed properly, and the culture products given, the proportion of cures is greater than when they are not used.

Third—Culture products produce an immunity which protects

the patient from relapses, hence make a permanent cure more often than hygienic and climatic treatment alone. Nearly all observers agree now that tuberculin should only be used in cases free from fever. The initial dose administered should be small and increased so slowly that no reaction, or, at any rate, a very slight one, follows. It should not be repeated until the temperature has again been normal from one to four days. After an interval of several months of apparent cure another course of tuberculin should be given. While physicians have differed during the year concerning the relative efficacy of various drugs in the treatment of consumption, there has developed a remarkable unanimity of opinion as to the great value of fresh air, sunlight and diet. These measures have been advocated for several years. But their real importance has not been appreciated by the mass of the profession until quite recently.

During the course of these remarks I have claimed that considerable progress has lately been made in our knowledge of the etiology, diagnosis, and treatment of tubercular affections. The question arises, Is there any proof for such a claim? The strongest and most convincing proof is the fact that the prognosis has also improved. We approach a case of consumption now with far more hopefulness as to the ultimate outcome than ever before in the history of medicine. Until lately we have treated this disease in a very perfunctory manner, but at the present time, the up-to-date physician does so with a zeal and earnestness, worthy of the foe which he is combating.

Now a few words concerning yellow fever and I will be through.

As long ago as 1881 Dr. Finlay, of Havana, announced his belief that the poison of yellow fever was transmitted from one person to another by means of the mosquito. This opinion did not meet with the approval of the profession at that time. And no further interest was taken in the subject until the etiological relations between malaria and the mosquito became known. It then occurred to several of the investigators that Dr. Finlay may have been correct in his opinion. The commission from the United States army, consisting of Reed and others, determined to investi-

gate the matter thoroughly, and to settle it if possible. With this object in view they made a great number of experiments in Havana during the past year and reached conclusions the most important of which are as follows

First—The mosquito, *culex fasciatus,* serves as the intermediate host for the parasite of yellow fever.

Second—Yellow fever is transmitted to the non-immune individual by means of the bite of the mosquito that has previously fed on the blood of those sick with this disease.

Third—An interval of about twelve days or more after contamination appears to be necessary before the mosquito is capable of conveying the infection.

Fourth—Yellow fever is not conveyed by fomites, and hence disinfecting of articles of clothing, bedding or merchandise supposedly contaminated by contact with those sick with this disease is unnecessary.

Fifth—The spread of yellow fever can be most effectually controlled by measures directed to the destruction of mosquitoes and the protection of the sick against the bites of these insects.

Sixth—While the mode of propagation of yellow fever has now been definitely determined, the specific cause of the disease remains to be discovered.

The evidence brought forward in favor of the mosquito theory is very strong, if not absolutely conclusive. Eighty-five and seventy-one hundredths per cent. of the persons experimented upon with contaminated mosquitoes became infected with yellow fever. Reed and his associates were able to produce an epidemic at the experimental station, by simply exposing several of the non-immunes to the bite of the insects, and by protecting the remaining non-immunes they were able to put an end to the epidemic. The spread of the disease was entirely subject to their will. It was simply a matter of controlling the infectious mosquitoes. Sanarelli claimed that sickness produced by these insects was only a mild form of blood poisoning. But this contention is completely overthrown by the facts in the case. All the symptoms of yellow fever were present. It was diagnosed as such by a committee of eminent experts,

and all those who recovered proved afterwards to be immune against the non-experimental form of the disease. Furthermore, the mosquito theory furnishes the only satisfactory explanation of several facts noted during past epidemics. For instance, it has been observed that there is an interval of about sixteen days between the first case and the development of the second one; the reason for this is, that after a mosquito has fed upon the blood of a yellow fever patient, it is twelve or more days before it can convey the disease. Again it has been a common observation that an infected house which has been vacated for one or two months, still retains the contagion, and no explanation was ever given for this, until it was demonstrated that a mosquito could transmit the infection as long as sixty or even seventy days after it had become contaminated.

Having determined that yellow fever can be transmitted from one person to another through the agency of the mosquito, the commission undertook to decide if fomites could also act as carriers of the infection. For this purpose a room was specially constructed. The light, temperature and ventilation of this room was regulated so as to be conducive to the propagation of the fever. Blankets, sheets, pillow-cases and mattresses soiled with the fecal matter, urine, sweat, black vomit and blood of yellow fever patients were unpacked from boxes, and hung around the room in a manner to promote the diffusion in the air of any contagion present. Seven non-immune individuals remained in this room for twenty-one nights each. They slept in gowns that had been worn by persons suffering from yellow fever. They slept on mattresses soiled with black vomit, and under sheets fairly reeking with the excrement of yellow fever patients, while their pillow-slips were smeared with the blood fresh from those sick with the same disease. Not one of the seven individuals contracted the fever, but a few weeks later when one of them was exposed to the bites of contaminated mosquitoes he promptly succumbed to the infection. The experimental work of Reed and his associates we believe proves the mosquito theory conclusively. But for the sake of those who are still skep-

tical, let us now refer briefly to the results obtained by a practical application of this theory.

Yellow fever has prevailed continuously in Havana for the past two centuries, not a month passing by without more or less of it. When the Americans took charge a campaign of sanitation was inaugurated at once. Every measure was adopted that was calculated to improve the sanitary condition of the city. All contagious and infectious diseases were treated according to the most improved methods of isolation and disinfection. Notwithstanding such efforts, one of the severest epidemics of yellow fever ever known in the city, occurred during the winter of 1899, and early part of 1900. When the etiological relation between the mosquito and yellow fever was announced, the health authorities of Havana in addition to the other precautions began to screen all houses containing patients sick with this disease. The result was a marked diminution in the number of cases, and the spread of the contagion was soon under control. In June of 1901, isolation and strict quarantine were discontinued. Disinfection of clothing was also abandoned. The only preventive measures carried out since then have been those directly against the mosquitoes. What has been the result? There has not been a case of yellow fever reported in Havana since the month of September, 1901.

Let us now parallel with this the results obtained by former methods. During 1898 the fever broke out in several small towns in the northern part of Mississippi almost out of the yellow fever zone. These towns were hilly, well drained, and furnished with good drinking water. Their sanitary condition could not have been better. Marine hospital surgeons with all necessary paraphernalia were dispatched at once, to each point of infection, and they were given complete charge of the situation. They isolated and disinfected, in fact, did everything at that time known to prevent a spread of the contagion, but all to no purpose. The disease continued in its onward progress, until stopped by the advent of cold weather. Working, then, upon the hypothesis that the spread of the fever was due to the mosquitoes, health officers have been able to eradicate the disease from a city which has been its hot-bed for

two hundred years. While, working according to former theories, they have been unable to even control epidemics in localities, that were unfavorable for the propagation of the infection.

There can be no doubt that all efforts in the past to suppress this disease have been very poorly directed. Sanatarians have failed to strike at the root of the trouble. Like Don Quixote, of old, they have spent their time, and wasted their energies, battling against windmills and imaginary foes. In the light of these facts, I do not see, how a reasonable person can reach any other conclusions than those announced by Reed, Carroll and Agramonte. There are two points, however, that I believe should be somewhat modified. In the first place, while the evidence is very strong that the mosquito is the only insect capable of transmitting the poison of yellow fever, it is by no means absolutely conclusive. In the second place, Reed and his associates claim that it is unnecessary to disinfect household goods. This may be true, but the proof to that effect is not complete. It has never been demonstrated that the mosquito can not receive its infection from fomites. Until such a demonstration is made we believe it is the part of prudence to disinfect all articles coming from infected houses.

In conclusion, gentlemen, I can not refrain from casting a stone. The State of Texas has always made persistent and determined efforts to protect its citizens from yellow fever, but has completely ignored that greater, deadlier and infinitely more common infection of tuberculosis. In the future while guarding our border along the coast, let us not be unmindful of the presence in our midst, almost under every roof, of a far more malignant plague than could ever be imported from abroad.

THERAPEUTICS OF THE GLYCERO-PHOSPHATES.

H. A. WEST, M. D.,
GALVESTON.

My attention having been recently called to the use of the glycero-phosphates of lime and soda in the treatment of several cases of nervous and other troubles, I wish to mention the chief clinical features of a few cases in which I have had occasion to exhibit the remedy. I trust that you may be sufficiently interested to try it in similar cases, and give the Association the result of your observations. It is only by united action that the power for good of new remedies can be established.

CASE No. 1. Mrs. S., a young woman about twenty-five years of age, from Southwest Texas, was brought to me for treatment February 27, 1901. The word *brought* is used in its literal sense, for she was conveyed upon a litter in a baggage car, presenting a deplorable picture of physical and mental prostration. Her physician and husband gave briefly the following history:

There was no record of hereditary nervous disease in the patient's ancestry. No cause could be ascertained for the present condition after searching inquiry. She had been happily married for four or five years, was childless, had suffered somewhat from dysmenorrhea and had several attacks of malarial fever. There had been no other sickness beyond the ordinary diseases incident to childhood. She had a delicate physical frame, and highly nervous temperament. The present illness began about three months before she was brought to Galveston. The more prominent symptoms were anorexia, insomnia, progressive loss of strength and flesh, a mild continued pyrexia, ending in complete hebitude and the condition now to be described.

The patient was apparently profoundly oblivious to all external impressions. She would swallow when food was placed in her mouth, but never asked for food or drink. Life had been sustained

for several weeks by the use of liquid peptonoids. The excretions from the bladder and bowels were passed involuntarily. The tongue was coated and tremulous. Emaciation was extreme. Physical examination of thoracic abdominal and pelvic viscera negative. Chemical and microscopic examination of the blood and urine, negative. The temperature ranged at about 101 degrees; pulse, 120. There was nothing in the history of the case or present condition to warrant a diagnosis of typhoid fever. As the patient progressed towards recovery, the temperature gradually became normal. When she was conscious and able to reply intelligently to questions, hallucinations of sight and hearing were found to have been present. A diagnosis of melancholia was made by a gentleman who claims to have a special knowledge of nervous diseases. Without going into the question of diagnosis it is sufficient to say that it was one of those border line cases, difficult to accurately define. As the indications for treatment were clear, the name of the disease was not considered to be of great importance. The patient had been kept under the influence of codeia for several weeks. This was immediately interdicted. Measures were taken at once to increase the supply of food. The patient was placed in the hands of a good trained nurse. Without going into details, it is sufficient to say that the usual measures resorted to in such cases were carefully executed, viz., forced feeding, massage, hydrotherapy, rest suggestion, various hypnotics were used in place of codeia; dionin was given in one-half grain doses at bed time for several nights; not proving effective, sulphonal was substituted, and was fairly satisfactory. These measures, in addition to a general tonic containing iron, quinia, and strychnia were kept up for several days. Improvement was progressive but not rapid. Finally my attention was called to the elixir glycero-phosphates of lime and soda. The effect of tablespoonful doses given three times daily of this remedy was, to say the least, remarkable. It seemed, to use a common phrase, to go to the right spot at once. The patient was able to sleep without the use of a hypnotic. Improvement was rapid in every respect, recovery was so far advanced that the lady was ena-

bled to return home, and I was informed by her husband that restoration to perfect health shortly ensued.

CASE No. 2. Melancholia. Miss V. G., aged twenty-five, native of Galveston, came under my observation November 3, 1900. The characteristic symptoms of melancholia of pronounced type were present. Insomnia, headache, mental depression, melancholic, facies, suicidal and homicidal tendencies, coated tongue, anorexia and obstinate constipation, cold, flabby, moist skin, and suppressed menstruation. Physical examination of thoracic abdominal and pelvic viscera negative. The pelvic organs were examined carefully under an anesthetic and nothing but an insignificant endometritis was found. This fact should be emphasized, as a prominent laparotomist (so-called) had promised a cure for sufficient monetary consideration, upon removal of an ovary. The treatment advised was about as follows: To avoid introspection as much as possible, exercise in the open air, and congenial and useful occupation about the house. Nutrition was to be improved by increasing the quantity of easily digested food, as the patient could be made to assimilate. A daily evacuation of the bowels was induced by the nightly administration of a pill containing resin. podoph., one-fifteenth grain; aloin, one grain; extract of nux vomica, one-half grain; extract belladonna, one-sixth grain. Sleep was produced by giving a nightly dose of chloral hydrate. As a general tonic an elixir of phosphate of iron, quinia and strychnia was given three times daily. Under the use of these measures there was slow improvement. Early in January this patient was sent to San Antonio. There she received electrical and local uterine treatment. She returned to Galveston in September. While there had been some gain in weight and the mental condition was better, still the patient was far from recovery. She still had strong hypochondriac delusions and disposition to commit suicide, and had to be constantly watched to prevent her from doing so. At this time I prescribed the glycero-phosphates. The effect was as immediate and as well pronounced as in the case of Mrs. S. I was enabled to dispense with the nightly hypnotic. The patient improved rapidly in every respect, and at this time, January, 1902, she is entirely well, with

the exception of scanty menstruation. She would hardly be recognized as the same person. She weighs more than she ever did, her complexion is clear, eyes bright, suicidal impulses and delusions gone. The effects of the glycero-phosphates in this case are specially pronounced, from the fact that all other well-known methods of treatment had been given a fair trial.

CASE NO. 3. Arterio-Sclerosis, with Chronic Interstial Nephritis. D. R. H., aged sixty-five. This gentleman I had noticed several months before he consulted me. I had observed the great emaciation, the yellowish skin and cadaveric appearance. I expected tuberculosis or diabetes. When he consulted me, however, on September 10th, I found evidence of contracted arteries and kidneys. This patient was in a condition bordering upon uræmic dementia. He was content to lead a merely vegetative existence, *i. e.*, to eat and sleep. He could only be gotten out of bed to eat, and took no interest in anything. The emunctories were made to act more freely. The diet was regulated: milk and farinaceous food was substituted for the excess of nitrogenous food he had been taking. The glycero-phosphates were ordered. A gradual but positive improvement was soon noticed. Whether due to the new regimen or whether the above named remedy by a reconstructive action upon the cerebral cells stimulated general nutritive processes I shall not attempt to say. I will remark only that the patient is now able to be out, takes some interest in earthly affairs, and his physical and mental condition has vastly improved.

CASE NO. 4. Mrs. M., aged thirty-five, native of Galveston, la grippe complicated by apical pneumonia and neurasthenia; when en route from New York had an attack of epidemic influenza; October 4, 1901, I found physical signs of pneumonic infiltration of the right apex. There was almost a constant cough, with very little expectoration. The patient had been abroad during the summer, and though she had received every possible care and attention, and had consulted several specialists, she returned to this country in a worse condition than when she left. She had lost flesh and exhibited all of the symptoms of neurasthenia of gastric type. There was a floating kidney. A New York stomach specialist had made a diag-

nosis of gastrectasis. Without going into details of symptomatology and treatment, it is sufficient to mention the salient points of the latter. Cough was controlled by heroin in one-twelfth grain doses. The diet was carefully adapted to the enfeebled digestive powers. Elixir glycero-phosphates t. i. d. before meals, and ess. pepsin with one thirty-second grain strychnia after meals. Improvement was rapid and progressive. The patient was sent to Colorado to forestall possible development of tuberculosis, to which her family is prone, and was apparently restored to excellent health, neither the stomach or the kidney complication giving rise to any symptoms.

CASES NOS. 5, 6, and 7 were mild types of neurasthenia, and were speedily cured by the exhibition of the glycero-phosphates.

CASE NO. 8. Mrs. A., aged forty-five, from Southwest Texas, consulted me January 15, 1902; mother of one child. This patient was possessed with the idea that she had serious ovarian disease and that an operation would be required. The prominent symptoms present were mental and physical debility, headache, insomnia, nausea, vomiting, disposition to fainting. The muscles were flabby, the skin lax and pale. Examination of the blood and urine negative. She could hardly be convinced that an operation upon her uterus or ovaries was not necessary. Physical examination of thoracic abdominal and pelvic viscera, negative. She was placed in charge of an excellent trained nurse and a modified plan of rest cure with forced feeding, hydrotherapeutics and massage adopted. The only medicine given was the glycero-phosphates. The improvement began at once. The vomiting and attacks of faintness, which had been the most distressing symptoms, were relieved almost as if by magic. The patient was in a few days taking and digesting more than three times the amount of food that she had been able to eat previously. For various reasons of domestic nature, I was unable to detain her longer than two weeks, the result being less satisfactory than if she could have remained longer. Since her return home the treatment has been kept up as well as possible, but the improvement has not been so rapid or progressive. But she is free from the serious symptoms and is still under observation.

While treatment in the above mentioned cases was not confined to the use of glycero-phosphates, yet the evidences as to its value is of such positive nature that it can not be ignored. Before speaking of the *modus operandi* of the remedy, it is well to refer briefly to the etiology of the forms of nervous diseases in which it appears to have special therapeutic power, viz., neurasthenia in its various forms, melancholia, toxemic conditions, and debility following many acute infections, as influenza, typhoid fever, etc.

It is also well to emphasize the causative connection between various neuroses as explanatory of the method by which the remedy produces its effects. In a recent article on the acute psychoses, by Dr. C. E. Riggs, of St. Paul, Minn. (*Journal American Medical Association,* November, 1901, page 1374) the subject is so clearly and succinctly presented that I may be excused in quoting from him. He proceeds to mention Dr. Clouston's theory, "that insanity is due to perverted nutrition of the cortical cells." "So-called hereditary tendencies simply means that the cell metabolism is more unstable than normal. It may be stress and heredity or it may be toxemia with or without heredity which gives rise to the perverted brain functioning.

"The general practitioner is familiar with the mental features characteristic of toxic states, such as Bright's disease, diabetes, the fevers, pneumonia, the puerperal post-operative and post-influenzal insanities, also those of poisons, chloral, opium, alcohol, cocaine, etc. He well knows that the insanity is toxic, and chemistry and bacteriology teach him not only this origin, but the most approved method of treatment as well. An impoverished nutrition in one having the insane diathesis does not necessarily mean insanity, it may result in one of the neuroses, such as neurasthenia, hysteria, chorea, epilepsy. Given inherent nervous defect the pathologic resultant may be either a neurosis or a psychosis. Perverted cellular nutrition is the basic cause of the pathologic findings in insanity, such as morbid changes in the cells themselves, increase of the neuroglia, degeneration of the blood vessels, and the pathological changes of the membranes, the skull and scalp. The fundamental fact, then, which we have to consider is that of cell nutrition. Pre-

vention of the metabolic derangement is the one thing of supreme importance. This is much easier of accomplishment in its beginning than after the complete evolution of the disease; it is for this reason that I place so much stress upon the importance of the early recognition and treatment of mental diseases."

Dr. Jas. H. McBride, of Los Angeles, California, called attention to the same facts in a recent article upon the management of neurasthenia. He says: "Many neurasthenics have one primary cause for their disorder and that in a measure modifies the effects of even their environment, a cause that lies deeper than any individual life experiences. That cause is found in an inborn instability of nerve element, some organic defect, in its essential structure, which makes many men and women unequal to the strain of adverse conditions, sending one to the bed of a nervous invalid, another to the hospital for the paralyzed and epileptic, another to the mad-house."

The same writer expresses the etiological relation between neurasthenia and insanity, as follows:

"In all cases of neurasthenia there is the mental element which is always an important part of the disease, in some cases the most important part. It is shown in inability to fix the attention, the feeling of mental tire, the loss of interest, the weakening of volition, the impairment of memory, and other phenomena that are only too familiar. The general functional disorder of the nervous system which, with its endless train of symptoms, is always present and uppermost in the patient's consciousness, fixes the mind upon the body and tends to limit the patient's thoughts to a certain set of morbid sensations.

"The normal interests are dropped one by one; more and more the thoughts revolve about the sensations of the body until finally the attention is centered there. This hyper-consciousness of bodily ailments may become a true hypochondria and many neurasthenics pass into this more pronounced morbid condition, while others become insane. These are among the cases of neurasthenia that to be cured need the moral discipline, the restful change and the limited and simple environment of seclusion."

Two prominent facts are brought out in the above quotations

(which doubtless represent the consensus of recent opinions upon the subject): first, that the fundamental pathological condition underlying insanity and allied conditions consists in a perverted nutrition of the cerebral cells; second, the interchangeable causal relations between the neuroses and psychoses. The causes underlying the malnutrition of the cerebral cells are various but may be embraced in toxemic conditions, impaired oxygenation, and destruc- subsequent to typhoid fever, dengue, epidemic influenza.

The use of the glycero-phosphates in the treatment of neurasthenia and similar conditions was first advocated by Dr. Albert Robin, of Paris, in 1894. This observer was led to the study of the action of an organic combination of phosphorus by noticing in the urine of certain neurasthenics of an excess of imperfectly oxidized phosphorus, and concluded that the same originated from a retrograde metamorphosis of the neuro-lecithin, the latter entering into the composition of all cells, but especially those of brain and nerve tissue.

Whether the action of the glycero-phosphates is due to a reconstruction of the cerebral cells by supplying phosphorus in an easy assimilable form, or whether the remedy has an oxygen-conveying capacity, also, I am not prepared to say. The cases herein cited, however, certainly seem to demonstrate the value of its therapeutic powers, and would seem to warrant a much wider field of usefulness than is embraced in the class of cases herein detailed, viz., sexual debility and functional impotence, premature senility, debility, subsequent to typhoid fever, dengue epidemic, influenza.

In those last mentioned acute infections, there occurs mental and physical prostration to such an extent as would seem to imply an acute neurasthenia, which could be accounted for by the probable destructive influence of the toxins upon the cerebral cells. I have no doubt but that the glycero-phosphates would produce the same effects in such cases.

In an examination of the recent literature upon the treatment of neurasthenia, I find no mention of the use of the glycero-phosphates. In my opinion further trial will demonstrate the positive and unequivocal value of the remedy in these and like conditions.

THE VENOMOUS SNAKES AND SPIDERS OF TEXAS.

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I realize there are many subjects of greater interest to the average practitioner of the day than a careful study of the venomous serpents and spiders of Texas, but is it not sufficient an excuse for the presentation of this paper when we stop to consider that any question of a medical nature that will broaden our mental scope, or render us more facile in meeting rare emergencies, worthy of our deep consideration? Such matters should be investigated, dissected, and the skeleton worth of the entire subject rendered ours through painstaking study. There is another point. We have for the last few years, through serum therapy, entered very nearly the domain of our homeopathic brethren, and seemingly in part adopted thereby his ancient motto of *"similia similibus curantur."* There have been noted many agents derived through the attenuating influence of serial subjects, which theoretic deductions have not alone classified of benefit in special bacterially induced diseases, but also proven through rigorous clinical tests to be of therapial worth. It has been through the noted similarity of induced symptoms existing between the various bacteria and their toxins and antitoxins, and serpent's venom, that the now ever-increasing interesting questions of infection, immunity and susceptibility have been entered into, retaining those who do so as captives scientifically bound, or as willing explorers seeking some obscure point to describe, and bear as a practical souvenir to the waiting medical world. Granting this, we men of Texas, then, in studying this subject, should consider only those genera and species of poisonous serpents and spiders found within the boundary of our State, speaking zoologically, but while so doing, we will, I hope, be refreshing a knowledge already acquired, but mayhaps partially forgotten by some; and to those members of the Association not so well informed, give points of

decided interest and value as to the constituents of the venom, the chemical nature of the same, its pathological and physiological effects, and finally, review the various methods of treatment employed today in meeting the results of the bites of the venomous snakes and spiders found here. The classification of the different types, or divisions of serpents, I have found after running through several articles on the subject, that herpetological experts have varied so widely in their schematizations as to be decidedly confusing to any one but an expert. Brown's classification, found in his article, "Poisoning with Snake Venom," 20th Vol. Twentieth Century Practice of Medicine, has been adopted by me. "The great family of snakes, the order Ophidia, is divided into three divisions: Ophidia Colubriformia, which are void of a poison apparatus: Ophidia Colubriformia Venenosa, and the Ophidia Viperiforma. the last two composing the entire group of venomous serpents." Owing to the thoroughness of it, Stejneger's division of genera and species have been followed in arranging the venomous types of serpents found in Texas. The classification of spiders is after Riley.

Texas contains, on account of the breadth of its domain, its varied climate, and near approach to, in its southwestern portion, the semi-tropics, the greatest variety of venomous serpents of any State in the Union. As to spiders, the two species found to be venomous, the Latrodectus Mactams and the Phidippas Tripunctatus, together with the entire group of spiderlike species, the Tarantula, are within its borders. Both species of the coral snake family, Elapidae genus Elaps, Schneider, the Elaps Fulvius, Linnaeus, or Harlequin Snake, and the Sonoran Coral, or Elaps Euryxanthus, Kennicott, both commonly called Coral, Thunder and Lightning or Bead Snakes, are here. These are the true American Cobra. Habits, ground burrowers; found in sweet potato patches; disposition, mild; food, other reptiles; bite, very venomous; three deaths reported by Stejneger in Texas. United States distribution, east of the Great Colorado River, west Continental Divide, as far north as Fort Whipple, south, into Old Mexico. Its bite demands prompt systemic treatment. In appearance, outside of the great differentiating sign,

separating venomous from non-venomous snakes of only one or two functionating fangs, on upper jaw, in opposition to two complete rows of teeth in non-venomous serpents, it differs from its mimic, the well-known King snake, one of the Lampropeltus genera, in its color schema. In the Coral snake we have a broad band of black, bordered by a narrow yellow band. In the King, a broader yellow than black band. Of the family of Crotalidiae, the type properly spoken of as the "Pit Vipers" (on account of the presence of a depression situated on either side of the head, between the nose and eye), we have three divisions. Stejneger's synopsis is brief and as follows:

Tail without rattle, ending in a point, genus, Agkistrodon, Beauvois.

Species, Agkistrodon Contortix Linnaeus, commonly called Copperhead, Upland Moccasin, Chunk-head, Deaf Adder or Pilot Snake.

Species, Agkistrodon Pascivorus Lacepede. Water Moccasin, Cotton-Mouth.

Tail provided with a rattle; (a) Top of head covered by regular shield, genus, Sistrurus, Garman. Species, Sistruras Catenatus—Massassauga.

Species, Sistruras Catenatus Consors—Baird and Girard, Gulf coast, Massassauga.

Species, Sistruras Catenatus Miliarus, Linnaeus—Ground Rattle Snake.

Sub-species, Sistruras, Catenatus, Edwardsii—Baird and Girard.

(b) Top of head covered by numerous scales; genus, Crotalus—Linnaeus.

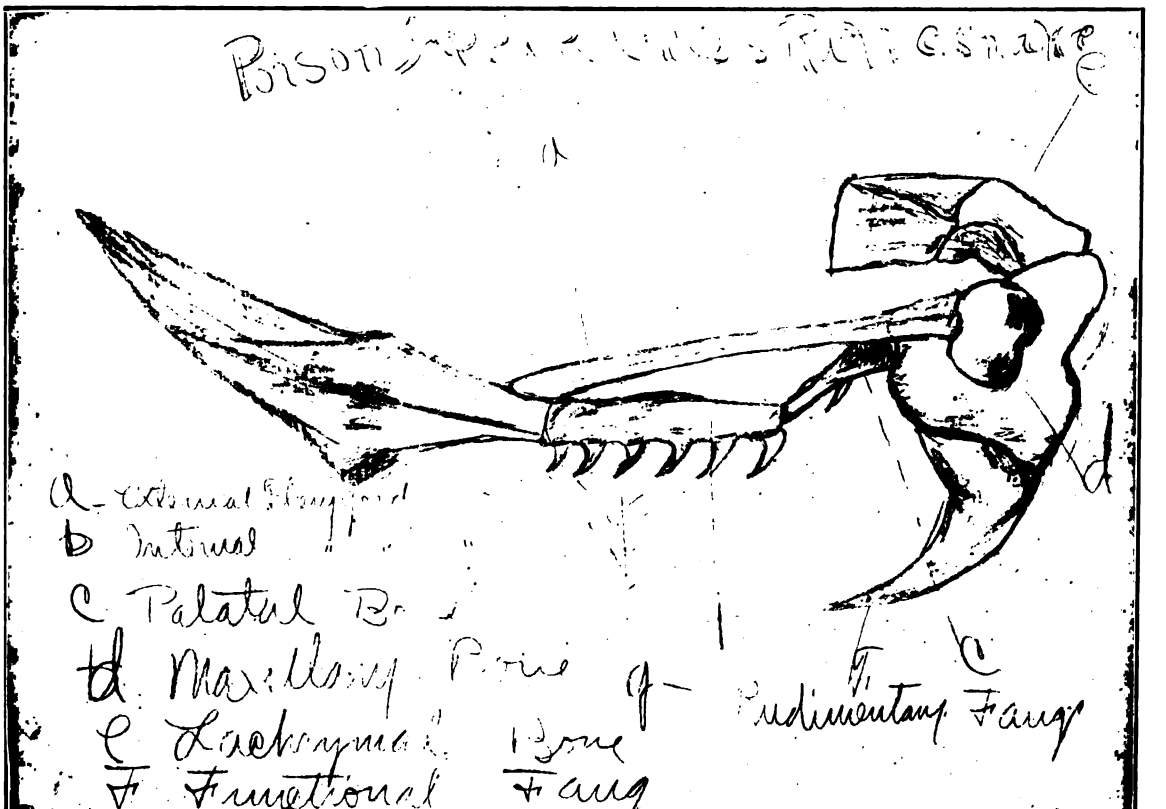
Species, Crotalus Molossus—Baird and Girard—Dog-faced Rattle Snake. Crotalus Horridus—Linnaeus—Banded Rattle Snake, Timber Rattle Snake. Crotalus Adamantous—Beauvois—Diamond Back Rattler, Water Rattle Snake; Crotalus Atrox—Baird and Girard—Texas Rattle Snake. Crotalus Confluentus Say, Prairie Rattle Snake. Crotalus Cerestes, Hallowell—Horned Rattler (?); Crotalus Lepidus, Kennicott—Green Rattler.

The color schema, separating these various genera and specie will

شكل رقم (٢٠) يوضح الهيكل العظمي لأحد الحيوانات

be purposely avoided. For those who wish to investigate more closely, permit me to refer them to "The Poisonous Snakes of North America," Stejneger. In order that we may differentiate easily the three great types of snake, it will be necessary for us to know that one of the chief points of difference exists in the teeth. All serpents have backward curved teeth in the upper and lower jaws. The innocent have two rows of ungrooved teeth on upper jaw, the outer occupying the maxillary. the inner, the palatine bone. The outer usually number twenty to twenty-five. A second type of snake having rows of teeth on the upper jaw, furnished with, at the base of the maxillary row, a grooved fang, used by it for destroying its food, has been classified by Stejneger as the Opisthoglyphs, thus denominating a genera which, while furnished with a venom apparatus connected with its grooved fangs, has but slight medical import, on account of the deep situation of the same, and the labial arrangement of the mouth, making it difficult, if not impossible, for this order to use their fangs while biting man. The division appealing to us for consideration, is supplied with fangs anteriorly situated, one or two functionating, several rudimentary, the former occupying the wedge-shaped maxillary bone, the latter, listed from the embryonic type to the rudimentary, the internal pterygoid and palatine bones. Thus, through the medium of the teeth alone, we are able to classify the various divisions; to differentiate the ones of venomous import, and thereby recognize, when we have the suspected snake's head which has bitten a patient demanding treatment of us, what form of remedial agents should be adopted, suggestive or medicinal. One other point of differentiation is the one used in separating the Elapidae family from the Crotalidiae family, which consists of the previously mentioned pit found between the nose and the eyes. In studying the poison apparatus, which consists of the fangs and the poison gland, it will be necessary for us to give certain interesting features, connected with the bony structure of the skull and the muscles utilized in expressing the secretions from the poison gland. Stejneger's description being so complete and accurate, I will utilize bodily: "I have stated above that the Elaps has two permanently erect and perforated

fangs, in the anterior portion of the upper jaw. In the Pit Vipers, there are similar but much larger fangs, differing from those of Elaps by being folded up towards the palate, somewhat like the blades of a jack knife when not in use. This must not be understood to mean that the fangs themselves are movable; on the contrary, the vipers fangs are as solidly fixed in their sockets as are those of the Elaps, but in the latter (see figure 1) the maxillary bones, into which the fangs are fastened, are elongated and horizontal, as in the harmless snakes (see figure 2). In the Crotalids they are extremely shortened and higher than long, so as to appear in a vertical position (see cut 3). In the former, the fangs are consequently inserted at nearly right angles, like the pick-axe on its handle. While in the latter, the fang more nearly represents the blade, and the jaw bone the handle of a knife, and it is the jaw bone which is movable in the vertical plane, not the fang alone. In order fully to understand the mechanism in question, it is necessary to remember that the bones of the head of nearly all snakes are so loosely joined together as to allow of a most extraordinary amount of movement and distension. Elastic ligaments connect bones, which in other animals are either grown solidly together or articulated by means of close joints; hence a snake is capable of swallowing a prey many times as thick as the snake's own body. As already noted, the upper jaw bones (maxillaries) are situated vertically, one on each side of the anterior portion of the mouth, the hollow fang being fastened into the lower end of the bone. On the outer face of the bone, there is above in the Crotalids, a deep cavity forming the bony walls of the pit. (See cut 4.) This cavity separates two articular surfaces. The upper one at the top of the maxillary, forms with the corresponding concave face of the lachrymal bone, which projects from and articulates with the frontal bone, a hinge-like joint, allowing considerable freedom of motion. The lower surface receives the flattened anterior end of the external pterygoid bone. It will be seen from noting cut 3 that if the latter bone (a) be moved forward or backward, the maxillary hinges on the lachrymal, and if the pterygoid be pushed forward, the fang is erected. There are several muscles engaged in producing this erec-


a- External Maxillary
b Internal "
c Palatal Bone
d Maxillary Bone
e Lachrymal Bone
f Functional Fang
g- Rudimentary Fangs

tion and the opposite motion, the depression of the fang, but we shall only mention the two principal ones. The elevator muscle of the fang is the spheno-pterygoid muscle (a) (see cut 5), which arises along the median ridge of the base of the skull (d) and running backward is inserted upon the enlarged posterior end of the pterygoid bone. The contraction of this muscle pulls direction (l-m—see cut 6) the pterygoids forward, which thus push the lower end of the maxillary forward, the upper end being held in position by the lachrymal hinge. The tip of the fang describes part of a circle, finally points downward instead of backward. The chief retracting muscle which antagonizes the elevator muscle by acting in the opposite direction is the external pterygoid (ecto-pterygoid muscle b, cut 5) which, arising from the joint between the quadrate bone and the lower jaw, runs forward and is inserted on the outside of the maxillary bone, a little below the joint of the latter, with the outer pterygoid bone. It will be seen that the contraction of this muscle means a pulling backward of the maxillary bone in the direction, p-e (cut 6) resulting in the backward and upward movement of the joint of the fang. The fang itself is a large, very pointed and curved tooth, containing two cavities, the pulp cavity and the poison canal (see cut 7), the former situated on the concave, the latter on the convex side of the tooth." The poison canal has a more or less slit-shaped opening near the base of the anterior side of the fang, and another from the very sharply pointed tip. Between the openings, it is often possible to trace a more or less well defined depressed line. This fang has been evolved from the grooved fang of the opisthoglyph, as the latter has been from the plain tooth of the innocent Ophideans. This structure of the fang may be easily understood by comparing it to a leaf, curling up in dying, the edges meeting and overlapping in the middle, leaving an upper and a lower opening. As to the rapidity of replacement of a destroyed fang, to borrow Dr. Weir Mitchell's words, "When the fang is lost by natural process, it is replaced within a few days, when violently displaced, several weeks sometimes elapse before the next fang is fixed firmly enough to be useful to the snake." If the functional fang be lost or shed, the next tooth gradually as-

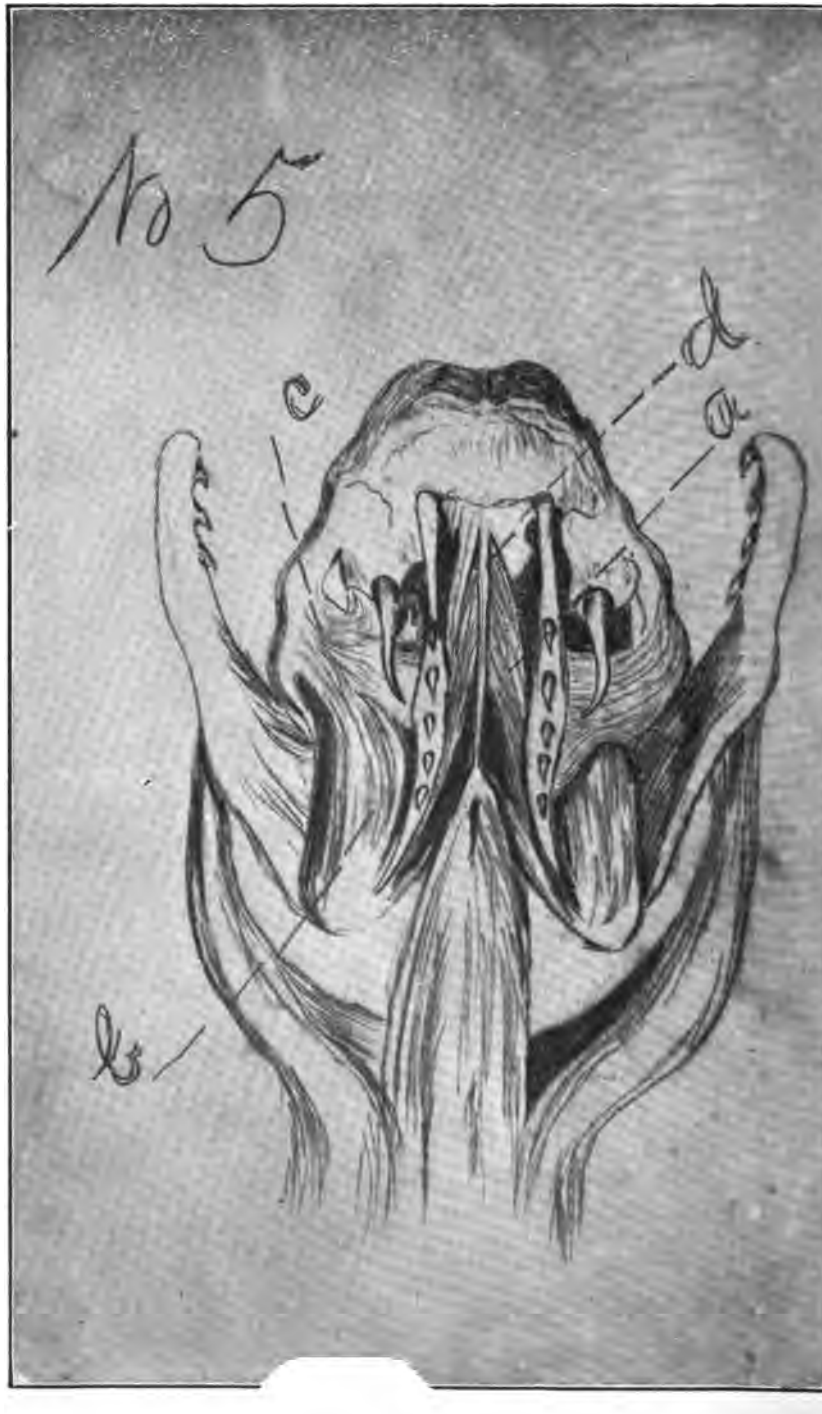
sumes its position (see cut 9). The poison apparatus outside of the fangs consists of a supermaxillary gland situated on each side of the head, below and behind the eye. A special development occurs in the yellow portion of the venom gland, which poison gland gives to the Crotalid's head a triangular shape. These glands are the homologues of the common parotid. The shape is that of a flattened almond, the pointed end toward the front and below the eye, tapering to a narrow duct which carries the poison to the inlet at the base of the fang. The relative size may be understood by glancing at cut 8. In structure they are racemose glands with elongated acinii. The glandular portion contains columnar epithelium, the ducts pavement epithelium. The blind pouches are lined with the angular nucleated epithelial cells. These cells respond to stimulation, belladonna, for instance. The muscles used in erecting and depressing the fangs have been previously described. In order that the mechanism of the entire poison apparatus may be understood, it will be necessary to briefly name and describe the most important muscles utilized in expressing the secretion of the poison glands. To borrow Stejneger's description, which is brief and explicit, we have "in the non-poisonous snakes the closing of the mouth is effected by the three temporal muscles, the anterior, middle and posterior. The anterior arises from the parietal crest and its continuation of the post-frontal bone turns backward around the joint of the lower jaw to be inserted on the taller bone; the middle arises from the posterior half of the parietal crest, runs downward and forward under the anterior and is similarly inserted, while the posterior, the strongest of them all, arises from the quadrate bone, and is inserted on the inside of the entire length of the angular bone of the lower jaw. In the Crotalids this arrangement is considerably modified (Fig. 8). The posterior (c) and middle (g) temporal muscles remain essentially as in the non-venomous snakes, and their function is also the same, viz., by contraction they pull the lower jaw up against the upper one, or in other words, close the mouth. The anterior temporal (b), however, has now both a different use and function. Instead of connecting with the cranial wall, it arises entire from the upper posterior portion of the firm, tendon-

No 4
Neptune

ous capsule of the poison gland (a), runs backward under the ribbonlike ligament (e) which fastens the gland to the joint of the jaw, winds around this joint and inserts itself (b) broadly upon the lower jaw. It may easily be shown that a contraction of these muscles will produce a tremendous pressure upon two-thirds of the poison gland, driving poison out of upper and back part of gland. It is also apparent that this closing of the mouth does not necessarily affect the gland, as only the posterior and middle temporals need be employed in the action, and that the pressure exerted by the anterior temporal is voluntary, as well as independent of the closing of the jaw." During this, the anterior lower angle of gland as well as portion of duct is subjected to similar pressure at same instant by flat tendonous insertion of a part of the external pterygoid upon the jaw. (See cut 8.) At the bend of the poison duct, under the eye, Weir Mitchell has demonstrated a genuine sphincterial muscle which will prevent escape of the precious fluid if needs for months. The secretion of these glands, the so-called venom, has differentiating qualities itself. A pale straw to yellow limpid viscous fluid, with a specific gravity from 1050 to 1065, acid reaction, containing a small quantity of epithelium and a varying amount of solid matter, it bears a marked influence in the prognosis of the bites of the different genera and species. There have been various methods used to obtain this fluid, such as the grasping of the snake behind the head, forcing open the jaws and compressing the glands, thus causing an excretion of the venom into graduates or other containers. The early study of this substance was more one of the proving or disproving of the curative qualities of the various proposed remedies, than as to its constituents. Felix Fontano was one of the first scientists who made any headway, and since his time, 1781, there have been certain points not improved upon. The scientific study of its constituents remained dormant from Fontana's time until Prince Lucien Bonaparte took up the study of the poison secretion of the European viper, in 1843, and, in so doing, made the discovery that it was an albuminous substance, with proteid principles, which he named Echnidene. For nearly twenty years the study of this subject remained as after Bonaparte's exper-

iment. In fact, until 1860, when Weir Mitchell, in studying the venom of the American rattler, confirmed the work of Bonaparte, and later with Reichert, 1882, separated with the most painstaking and conclusive scientific chemical tests three proteid principles from the original substance, again proven to be albuminous. They named these substances Venom Peptone, Venom Globulin, and Venom Albumose, a principal analogous to serum albumen. Others since, as Gautier, Wolfenden, Martin, McGarvey, Smith, Wynter Blythe, have taken up the study, and while accepting the findings as far as its being called an albuminous substance is concerned, they have differed as to the value of its various principles. Gautier claimed to have separated alkaloids, disproved by Wolfenden, who states that Mitchell's peptone fails to stand the chemical tests necessary to prove it such, and that instead, it is an albumose, or syntonin product; Martin and Smith say the three proteids are, "one an albumen and the other two albumoses, the albumen not virulent, but the two albumoses corresponding to hetero and proto albumoses of Kuhne, and are extremely poisonous."

Each of these principles have been proven not alone to vary as to their proportions in the venom bulk of the various snakes, but also have different pathological and physiological effects. All the venoms are subject to destructive influences from heat, 60 to 70 degrees C. for the Crotalids, 70 to 80 degrees C. for the Cobras. At varying temperatures Mitchell, Reichert and others have found the globulin principle to be coagulable, and on investigating to be, in the Crotalids, 24 6-10 per cent.; in the Agkistrodon, 7 8-10 per cent., and in the Cobra, 1 75-100 per cent. of the venom bulk. Through this simple heat test alone, there is proven to exist a marked variation in the proportion of the different principles contained in the venom of the different Ophidia. When we stop to consider the difference in the symptomatology of the poisoning influences of the various venoms, we are driven to believe the variation in the toxic result to be alone due to the quantity of the different principles. Heat changes the toxic symptoms by coagulating venom globulin, in Crotalid venom, until its results are quite comparable to those of Cobra poison; slight local reaction, no hemor-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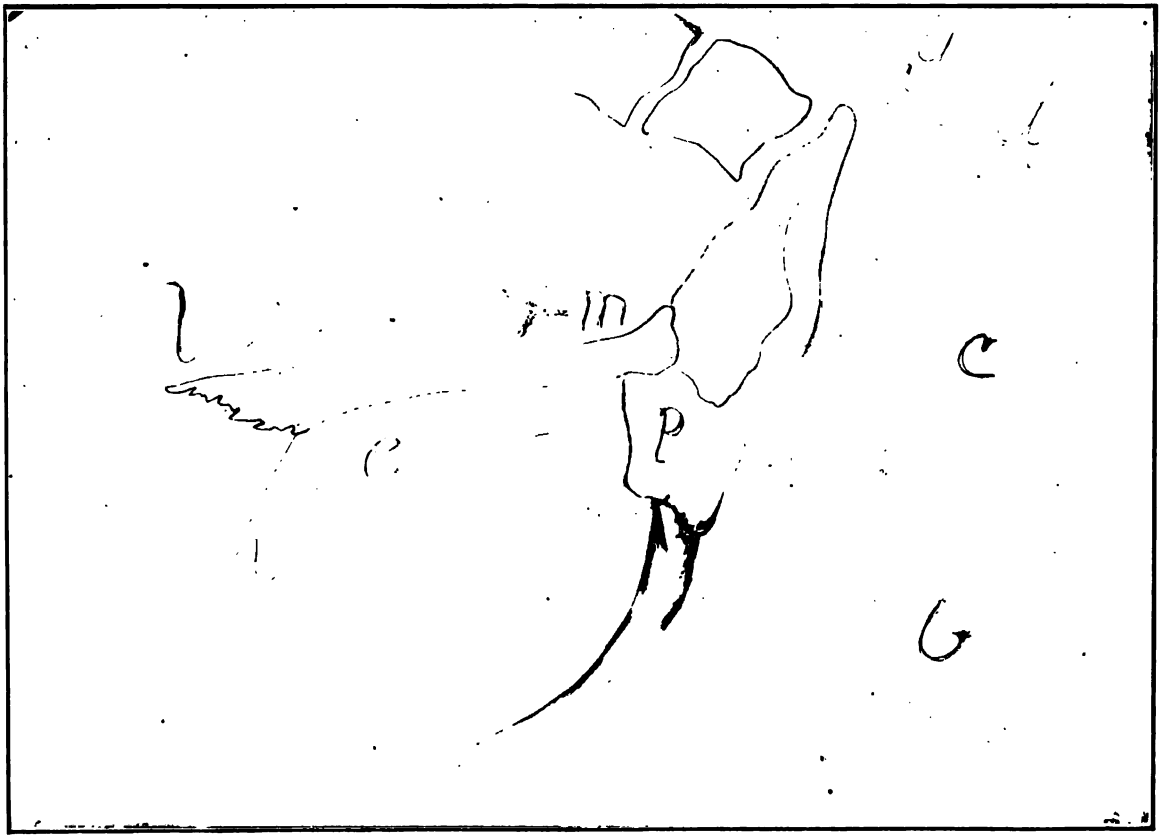
rhages, no extravasations or intravenous clotting. This result of heat is quite analogous to its influence upon the toxic albumoses of Abrus, and the proteids produced by the metabolic activities of certain of the bacilli. The actions of these three principles have been carefully studied by Mitchell, Reichert, Foektistow, Kaufman, Frazier, Calmette, and others. Mitchell and Reichert using the venom of the Cobra, Rattlesnake, Copperhead and Water Moccasin in many experiments upon animals, and from the results carefully noted, concluded that the symptoms produced by the two constituents of venom peptone and venom globulin differed markedly from each other. According to them, the venom globulin produces local swelling, blackening of the parts by infiltration of coagulable blood, induces echymosis, destroys the coagulability of the blood by modifying the red blood corpuscles (the hemolytic agent no doubt of Flexner and Naguchi, and in the molecular changes in the capillary walls is a marked factor), irritates the accelerator centres of the heart more notably than venom peptone, hence the increase of pulse rate; the primary fall of pressure is also produced by the venom globulin's action upon the vasomotor centres. It is the great depresser of the heart and paralyzer of the respiratory centres.

The venom peptone induces the œdema, the breaking down of the tissues, putrefaction and sloughing. It has little power to induce echymosis, to prevent coagulation or change of the corpuscles, less tendency than globulin to accelerate the pulse, increases blood pressure by irritating the capillaries, and is the principal factor through irritation of peripheries of the vagi nerves in the production of increased respiratory rate. Thus according to a greater or less amount of globulin, we have variation of local symptoms, so marked in Crotalids, and so slight in the Cobra. As we have noted above in the quality of venom globulin, contained in the poisonous secretions of the various snakes, and followed it by the actions of each of the two toxic agents, we have an explanation for the marked local symptoms in the Rattlesnake. The greater systemic than local in the bite of the Water Moccasin, and still greater systemic in the Elaps, in which we also have nearly an entire absence of all local

symptoms, with the exception of pain and swelling, but the presence of profound systemic irritation. We have also the toxicity varying in the bites of venomous serpents, not alone through the type of snake, but also through the size of the snake, its condition, the climate, hungry or full-fed snake, temperature, season, state of health of the person bitten, size of person, location of bite, quantity of venom, treatment given, time of treatment, entrance of the venom, whether subcutaneously or intravenously, susceptibility of person bitten; all these points present themselves for consideration in the treatment of a case of serpent bite.

Noticing the action of heat upon venom, led many investigators, Reichert, Mitchell, Calmette, Kaufman, Frazier and Foektistow, to study the various coagulating agent's action upon venom. Mitchell and Reichert found that in vitro pot. permanganate, hydrarg. bi chl., iodine, bromine, tinct. ferri. chl., hydrobromic acid, silver nitrate, nitric acid would coagulate it. Kaufman was given by the French Academy of Medicine, 1889, the Orfili prize for his study of venom's action upon the nerve, circulation and tissue, and that 1/100 of chromic acid locally used was the least irritating and most effective local remedy. Calmette states that gold chloride, 1/100, and calcium hypo-chloride, 1/60, freshly prepared and containing 80 per cent. of chlorine, were fine local remedies. Wehrman showed the action of the various ferments upon venom to be that ptyalin and pancreatin are destructive. That pepsin amylose were feebly active. When introduced by the mouth, venom is partially destroyed by ptyalin, practically untouched by the gastric secretions, and completely destroyed by pancreatin secretion. Many have noted the similar destructive action of the digestive ferments upon the toxins of both glandular and bacterial origin. Lacerda, Wehrman, working independently, have found venom to have the faculty of coagulating eggs, milk, and emulsifying fats like pepsin.

The symptomatology of the poison derived from all snakes, has many common points. Equally so, that of the bite of venomous insects, such as spiders. From both we have originating local and systemic symptoms, which vary with the specie. In all we have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pain, variable, local swelling and irritation to the cardiac, respiratory and cerebral centres, blood changes, anti-bacteriolitic influences, all of these varying with the type of serpent or spider. In the Cobra, we have light local, but severe systemic signs. Death generally induced by paralysis of respiration. With the Copperhead and Moccasin, the local signs are more marked, the systemic signs less so; the pupils contracting. In Rattlesnakes, intense local signs, the systemic signs, as in the bite of the other Crotalids, in which the pupils are dilated. The symptoms depend on the mode of entrance of the venom, whether it is subcutaneous or intravenous. The persistence of symptoms depends on the method of elimination. When subcutaneous, the systemic symptoms are delayed, according to type of snake producing the injury, from a few minutes to half an hour. Intravenously, death frequently occurs in a few minutes, especially in the bite of the Cobra. In the bite of the Rattler, we have at times death occurring as a secondary result, due to the intense sloughing, moist gangrene, as a result of the local effect of the venom peptone, and the weakened resistence of the patient due to the anti-bacteriolitic effects on the serum by the venom. The morbid anatomy findings show intense hemorrhagic infiltrations, especially after the bite of the Crotalid genera; locally intense muscular disintegration, tissue change, œdema, and extravisation. In the bite of the Cobra, the blood fluid clots at times in some of the veins, congestion of the mucous membrane of the bronchi, engorgement of veins of pia, locally slight swelling and small amount of blood tinged serum. The pathological changes are marked in the muscular and subcutaneous tissue, necrotic changes being induced (Mitchell), blood a permanent fluidity (Martin), a primary clotting due to the influences of the agent aglutinin separated by Flexner and Naguchi in their study of the hemolytic and bacteriolitic action of snake's venom and blood serum. They have found this principle to be certain inorganic substances and complex agents derived as well from living plants as animals. Some are of cellular activity found in the blood, some of bacterial growth as tetanolycin. After admixture of the blood corpuscles with any of these agents, the corpuscles first run together or become aggluti-

nated, secondly, they are dissolved and destroyed. They have named this action hemolysis. This phenomena of venom has its counterpart in the action of certain serum upon bacteria, as Widal test in typhoid, Pfeiffer's phenomena with cholera spirilla. The agglutinating principle is distinct from the dissolving one. The latter action being induced by two principles, one stable, the product of immunerization, the intermediary body; the other unstable, normally present in body juices, and known as the complement. Flexner and Naguchi found the agglutinating principle to be the same for red and white corpuscles, but that distinct principles came to play in the inducement of solution of each. They claim there exists in venom several distinct bodies, with affinities for various species of blood corpuscles, with special affinities for complements; that the anti-bacterial results of venom poison to be due to the fixing of a sera complement. This blood solution is more marked where venom has been injected directly into a vein. In the blood vessels a rapid dissolution of continuity occurs through the action of venom, thus permitting the escape of blood into the tissues. The germicidal properties are destroyed. There is a marked lesion of the respiratory centres, partially due to the inability of blood corpuscles to carry oxygen; fatty changes occur in the liver, kidney and spleen; hemorrhages take place in the lungs, kidneys and stomach; bloody effusions into the pleura and pericardial. According to Mitchell, the physiological action of the venom is not direct upon the nervous system except as a paralyzer. Foektistow claims venom to be an intense nerve poison. Mueller confirms it; Kaufman says this nerve injury is proven by the short period of primary excitation, followed by drowsiness lasting until death. The reflex and voluntary movements and sensibility being lost. Respiration is first increased, then decreased, and becomes shallow, first brought about by irritation of the peripheries of the pneumo-gastric nerve; later depression of the respiratory centres; temperature elevated, if absorption is slow, lowered if rapid; heart's activity very marked in Crotalids and other viperoids bite.

The diagnosis of a venomous snake bite depends on several objective signs. The presence of one or two isolated punctures,

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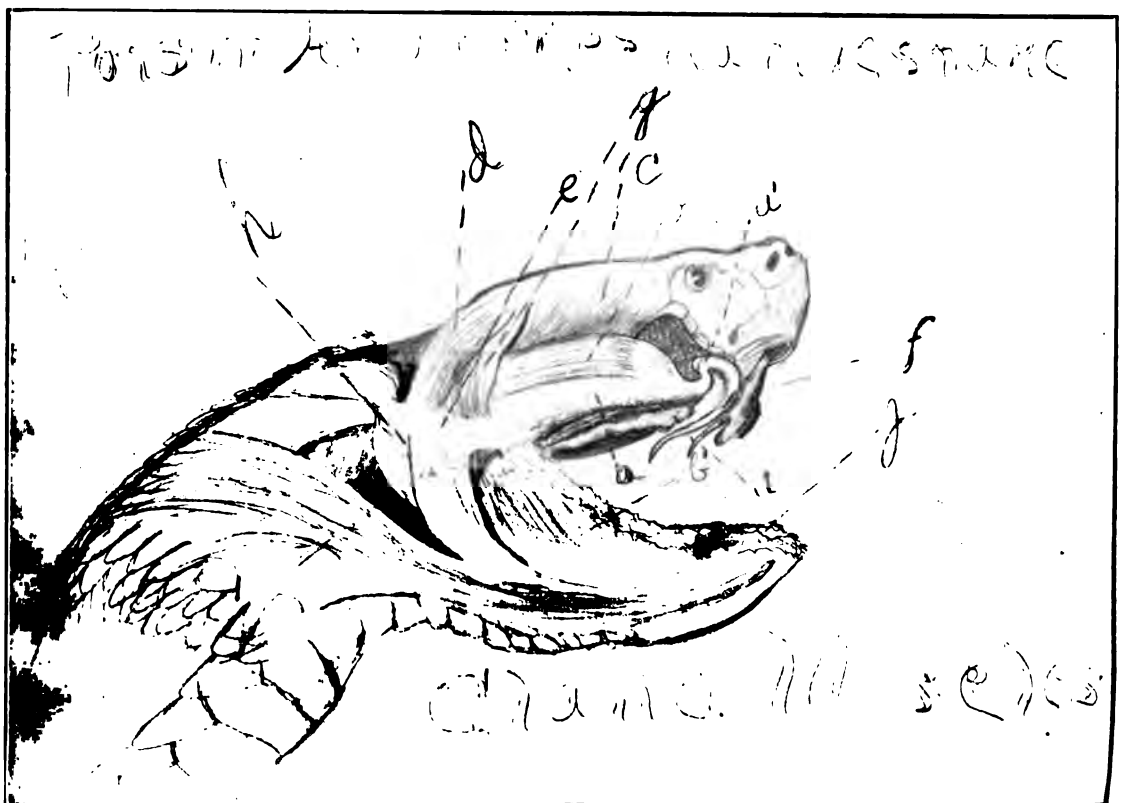
variably separated according to size of snake; the local pain, swelling, and peculiar systemic symptoms; the history given by patient; the type of snake if the head has been secured and the absence of two rows of teeth upon upper jaw, the presence of one or more functionating fangs, found by taking a pencil, pen or small stick and stroking the mucous surface of upper maxillary; the presence or absence of a pit, thus separating the Cobra from the Pit Viper. All snakes' bites are considered venomous, it seems, if one listens to the stories told by by-standers of the terrible results occurring after the bite of a snake exactly like the one being considered. All remedies are efficacious, to read the report of the wonderful success of local remedies used hours after the entrance of the poison, but with the above knowledge at hand, and the information to be gleaned from the careful study of such men as Fayer, Calmette, Foektistow, Mitchell, Reichert, Frazier, Kaufman and Stejneger, that the venom will be slowly absorbed, despite the ligature, and when in the circulation, owing to the peculiar analogy existing between venom and blood serum, it is free from the attack of any coagulating agent.

The prognosis of the case depends upon many factors: the size of the snake, the type of snake, the climate, temperature, size and condition of patient bitten, point bitten, treatment used, etc. The main interest in this article, I am sure, to you, lies not in the different findings given you, but rather as to the methods of treating a case of snake poison. Since the earliest time, various agents have been suggested, tried, and then the most of them abandoned. Governments have offered large sums for a treatment specific in its effects, but as yet no one has been able to secure the prize. We have a dual condition to deal with in treating a case of snake poison, which is a toxic agent with local and systemic effects, and in consequence our treatment must be local and systemic. Many of the agents and their discoveries have been previously mentioned, capable to neutralizing in *vitro* and in *situ* the toxic principles of venom. Any of these must be used promptly to prevent systemic symptoms. The old mechanical remedy, the ligature, applied above and below the fang punctures, accompanied by scarifying, cupping or sucking

of the wound, still justly retains first place in local treatment. The injection of one of the coagulating agents (Kaufman's chromic acid, 1/100, seeming to be the best, having great coagulating and fixing principles, and but slight irritating influences on the tissues) in the tooth wounds about the point of swelling, and followed by free massage, has been proven, when used early, to be able to destroy the entire chain of dangerous symptoms following venomous serpents' bites. Potassi. permanganate in a one to four per cent. solution, I presume, is the most common local remedy used, but it oxidizes very rapidly in the tissue, and hence becomes rapidly useless. Kaufman experimented upon four dogs, giving each, on the inner side of the thigh, two drops hypodermically of viper's venom. In one, five minutes afterwards, he injected a bichloride solution, 1/1000. In another a potassi. permanganate solution, 1 per cent. In another, a 1/100 chromic solution. On the fourth, he used no antidote. Results: bichloride caused sloughing, pot. permanganate produced ulceration, chromic acid reddened only. The three dogs on which these antidotes were used recovered, the fourth dog died. Calmette says he used successfully calcium hypochlorate solution, 1/60, specially prepared, thirty minutes after inoculation of the animal with the venom.

In local treatment, we have remedies, applicable only in the early stages, and as Mitchell and Kanthack state, it is a hopeless task for one to attempt to locate a remedy that would follow the circulation, and act as a physiological antidote. We have, then, this fact presenting itself. A case seen early should have marked local attention; a case seen several hours after the injury, should have marked systemic attention. We are dealing with a toxic agent, attacking the respiratory centre primarily, the cardiac centre secondarily, paralyzing each of them. As one writer characterizes it, we have in Cobra poison what might be called an acute bulbar paralysis of the most furious type. In viper poison an acute ascending spinal paralysis, and so we should use remedies acting as respiratory and cardiac stimulants. Alcohol has these faculties when used in small doses, but induces the analagous symptom to venom when used in intoxicating doses. Alcohol has no direct beneficial action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on venom; on the contrary, locally or intravenously used, it seems to add to the virulence of the poison. Ammonia injected at the site of the puncture is worse than useless. Experiments from Fontana to Mitchell's time, together with the findings of leading physiologists, prove it; internally, as a stimulant, it is inferior to alcohol. Its radical defect is that in severe cases it increases arterial pressure, thus aiding venom to induce intense internal hemorrhages. The remedy meeting most effectually the systemic conditions present in serpent's bite, is strychnia. Mueller, of Australia, has become famous for his advocacy of strychnia in venom poison, and as a proof that it is a direct antithesis of snake poison in its action, he says: "While snake poison turns off the motor batteries, and reduces the volume and the force of motor nerve currents, strychnine when following it as an antidote, turns them on again, acting with the unerring certainty of a chemical test, if administered in sufficient quantities. Purely physiological in its action, it neutralizes the effects of the snake poison, and announces by unmistakable symptoms when it has accomplished its task, and would, if continued, become a poison itself. Previous to this announcement, its poisonous action is completely neutralized by the snake poison, and the later would therefore be equally as efficacious in strychnine poison as strychnine is in snake." He varies his dose according to the specie of snake inducing the accident. If a Cobra has induced the condition, he uses a larger dose than in meeting a condition induced by another specie; if the symptoms denote a large dose of poison to have been imparted, and that has been in the system for hours, he advocates nothing less than 16 minims of liquor strychnia B. P. in very urgent cases, 20 to 25 min. in a person 15 years of age. If the fangs have penetrated a vein, he states, use the strychnia intravenously in one-half grain dose. Mueller further warns physicians against allowing a patient to sleep much the first twenty-four hours. Yarrow advocates the suggestion of a French physician, Dr. Josso, the use of jaborandi or its alkaloid, pilocarpine. Yarrow reports cases, giving proof that it will stay the effects of a lethal dose of venom. Bancroft calls attention to strophanthus. Among other remedies used and recommended, are the following given by mouth:

Calomel, iodide of potash, nitrite of potash, tobacco ashes, tinct. iodine. Hypodermically: Caffein, and atropine. The natives of India, of Japan, the Redskins of America, the Indians of Choco and those of Ecuador, the Naturals of Martinique, the Negroes of Brazil and the primitive tribes of Columbia, try to combat the accidents of serpents' bites with the juice of plants belonging to the aristolochiae and piperasae families, sometimes pure, sometimes dissolved in larger or smaller quantities of alcohol. Besides these vegetable substances, they use vipers gall, spts. of ammonia, the curarinna, the serpents stone, Piedra de Serpiente, the East India Pambaobilio, Pe Haba del Cabellero (Gentleman's bean), the sprouts of sugar cane, lemon juice, and many other empirical remedies.

Artificial respiration is indicated, proven by a series of experiments carried out on animals by Fayrer and Brunton, who were able to keep the test alive for several hours by this mechanical means alone. Calmette's anti-venomous serum, an inducer of artificial immunity, was evolved by its discoverer from the experiments of Frazier in 1869, who induced immunity to the minimum lethal dose of Cobra venom by the repeated administration of small doses of the Cobra venom. Others proved the effects of other venom by similar experiments. Calmette then, using these experiments, and following the vaccinatory theory of Tizzona, Roux, Baring and Kitasato, the using of serum from vaccinated animals to induce protective and curative results, evolved his anti-venomous serum. There have been many successful cases. We have, through the methods of elimination of the toxic principles of venom from the body, practical suggestions as to the remedies to adopt in treating the accidents of venomous bites of serpents. Foektistow and Mueller have shown the kidneys eliminate a portion of the poison. Ault has shown the stomach eliminates a portion. Wooster has demonstrated the skin's action in eliminating. By the first we have suggested diuretics, by the second, stomach washing, by the third, pilocarpine and like agents, inducing perspiration. As to the benefit to be derived from stomach lavage, there is an experiment of one of our leading American therapeutists, Hare, I believe, upon the elimination of the opium alkaloid, morphine, which experiment showed that

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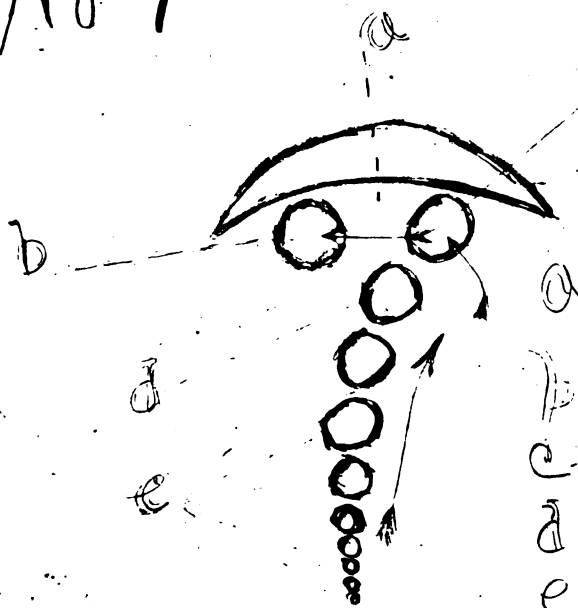

a Alveolar Sec
b Punctio marginal
c Successor
d Next fang-
e Germs.

when given subcutaneously or intravenously, nearly the entire amount of the pure drug could be recovered by frequently repeated lavage of the stomach. We are dealing with a poison analogous in many ways to the alkaloidal group, and the use of gastric washing is a practical indication in the handling of all cases suffering from snake, and no doubt other venomous, bites. We have, as the above mentioned therapal expert found, this peculiar physiological operation going on, that an alkaloid is borne by the general circulation, with varying degrees of rapidity, to the stomach, emptied by the secretory glands into the gastric cavity, and then reabsorbed in part, if not in toto. Through this there is an explanation for the clinical observation, made in poison cases, affected by subcutaneous administration of the various toxic agents, derived especially from the vegetable group, that an antidote given seems to overcome for a time only, and unless repeated at various intervals, there reappears the entire chain of symptoms of the original toxic substance. Lavage removing these principles or remedies employed by the mouth that will chemically neutralize them in situ, are indicated both in the alkaloid poisons and the venoms of the deadly Ophidia. Apropos to this point, comes the explanation of the seeming benefit derived from giving iodine, iodide of potash, nitrate of potash, tobacco ashes, calomel, and various vegetable and mineral agents used from antiquity to the present time, in all climes, in the treatment of the various classes of snake poisons. We have noted in the chemical study of venom, and the agents that would destroy them, also in describing its analogues, that the alkaline secretion, such as ptyaline, pancreatin, and the intestinal secretions, would neutralize; that pepsin is in many ways an analogous substance; further, that venom given on an empty stomach would produce toxic symptoms, showing that the gastric secretions and stomach mucous membrane would neither destroy nor fail to absorb, provided no other substance bulked the organ, mixing and thus neutralizing the quantity of the poison.

The various nations and tribes of Aborigines have used agents surrounded by and clothed with superstitious rites and ceremonies which, when investigated by the proper scientific mind, and stripped

of these useless garbs, have been proven to be of intrinsic value. A historical review of the various accepted remedies of today would prove this point. Take the use of serpent's gall, by the bushmen of Australia, the fetish men and snake charmers and gatherers of India, and the black men of Africa, who various travelers in these widely separated climes have noticed using with only seemingly beneficial results, and then read an article, giving the results of the handling of a case, treated alone with snake's bile internally, locally applied to the wounded area, the fang punctures covered with the gall bladder, the results successful, and I am sure you can but exclaim, there are many things empirically employed, which when scientifically investigated, will lead to not alone the discovery of, but to the explanation how, such agents contravert a toxic principle. Going further we have, through the customs of the natives of various countries, especially the East Indies, the proper superstitious and empirical forerunners of the valuable experiments of Calmette and Frazier, along the line of immunization to the Ophidian's venom. These various ignorant people have for ages been accustomed, before entering the forest and bush on hunting or warlike forays, to protect themselves against the various deadly serpents inhabiting their country, as the Cobra and Adder of India, the Bush Snake and Black Snake of Australia, by rubbing their bodies with the secretions of the poison gland, by eating the fresh glands from a recently killed venomous snake, or drinking pure, accompanied by food, the venom itself. As a result they have been found, by various authentic observers, to be immune for various periods of time to the bite of any venomous snake. Mr. Alfred Bolton, in the *Lancet,* 1886, is quoted as follows, by Frazier: "The native Bushmen land Namaqualand, Damaraland and the Kalakari are in the habit of extracting the poison gland from the snake immediately it is killed, squeezing it into their mouths, and drinking the secretion. They thereby appear to acquire absolute immunity from the effects of snake bites." He says he has seen a native, who was a snake poison drinker and a collector, bitten by the Indian Cobra, with only slight local pain as a result, and says: "I feel I can no longer refuse to believe in the efficacy of snake virus itself, as a rem-

edy against snake poison." By these customs, by the experiments of Calmette and Frazier, and the more recent investigations of Flexner and Naguchi, in their study of the hemolytic and anti-bacteriolitic action of venom, we have led ourselves easily into the broad domain occupied by the bacteria, and various toxins and antitoxins eliminated by them; by the ptomain and leucomain group of poisons, and by the virus of the various poisonous serpents and insects. Within recent years, many scientific eyes have been observing through the magnifying influence of the microscope, and the various reliable chemical tests, used in studying and thus noting the interesting pathological, physiological and clinical phenomena, surrounding the great allied question of infection, susceptibility and immunity.

On concluding this article, I wish to state that I have purposely avoided every question pertaining to serpents of a superstitious nature, outside of when it had a bearing on treatment, but before closing, I should like to call your attention to a few much mooted and misunderstood points. It is supposed that the number of rattles on a Rattlesnake indicates his age. This is not true. The Rattler develops from four to six rattles a year. People also speak of a snake's ability to charm its prey; the peculiar influence the serpent has is no doubt due to the drawing of a bird or animal within reach of the serpent's stroke through the well known, constant curiosity of all animals. Anger at times is added to this. The swallowing of the young by snakes, especially the Rattler, is asserted to be a fact, and again is vigorously denied. Dr. Rudolph Menger, of San Antonio, kindly mailed me an article by him, in the *Texas Stockman and Farmer,* which contained the following letter from a Mr. Wickland:

"Answering your request, I will make the following statement: About fifteen years ago, while I was driving some cattle with a German neighbor, A. Real, we were stopping on a hill to cook our dinner. I went to a trash pile for some kindling wood, and noticed a number of young snakes, about eight or ten inches long, disappearing in the trash. Also heard a rattlesnake rattle. After starting the fire, I set fire to the pile, and both of us watched it. In a short while a big rattlesnake appeared, which I killed. At the same time a second one came out, which Mr. Real killed, and still another came out, which was also killed, making three in all. Each one

about three to three and one-half feet long and extraordinarily thick, which induced me to cut them open with my knife. We found eighteen young ones in the first, eight in the second and twenty-two in the third, making forty-eight young snakes. Each one tried to escape, but we killed them all. Each one had a little rattle at the end of its tail, and also tried to bite at us. About thirty-nine years ago, in 1862, shortly after starting in the sheep business, I was herding the flock myself, and one day met a snake apparently asleep with a number of young ones around her, when all of a sudden they noticed me and disappeared through the old snake's mouth, and after killing her I found them inside."

My friend, Mr. J. D. Mitchell, of Victoria, a keen, reliable and well known observer, has told me of a similar observation made by himself. He states that while removing some lumber, his men and himself had their attention called to the presence of rattlesnakes, under the pile, by the well known sound. Turning over the pile of lumber, they observed three large mother snakes, with variable number of young ones crawling over them. Finally one of the men called out to Mr. Mitchell, and stated that one of the mother snakes was swallowing her young. Such was the case; part of one of the young ones was still protruding from her mouth, which disappeared after the mother had made several gulping movements of her throat. The snakes were killed and opened. The live young ones were inside. In opposition to this statement, W. Odell, a San Antonio dealer in Texas and Mexican reptiles, handling from fifty to sixty thousand a year, replies to Dr. Menger on this subject, as follows:

"About snakes swallowing their young. I have had nearly two thousand born at my place of business this year, and I have never seen one mother that would pay any attention to her young; and as soon as they are born they will stray away and hustle for their own food, the mother paying no attention to them. They will live for two or three months after birth without anything to eat, but must have water. If a snake should swallow its young, and they remain in the stomach for twenty minutes, the gastric secretions of the snake would kill them. I know this, as I have had snakes to get very hungry by not having food for so many, and they would swallow one, which, if left in them a short time, would be dead, but if taken out quickly, will get all right in a few minutes."

In summarizing, then, we have the following cardinal points indicated in treating a snake poison case: 1st, local; ligature above

and below the wound; injections of local coagulating agents, as pot. permang., 1 per cent. solutions, chromic acid, 1/100, etc. Scarifying the wound, followed by cupping or sucking; massaging the swollen area; loosening the ligature at times to prevent strangulation. Systemic treatment, strychnia to effects, frequently repeated, and atropine as a respiratory stimulant. Pilocarpine hypodermically, until it has induced profuse sweating. Alcohol in small doses. Ammonia rarely, then only early and in small doses. Fluid extract of cedron seed in 5 to 10 min. doses. Stomach lavage; iodine, pot. bromide, and calomel, chemical agents neutralizing venom in the stomach. Artificial respiration for hours; diuretics, diaphoretics and purgatives. Finally, do not allow patient to sleep long at a time during the first twenty-four hours, also encourage the invalid, as deep mental prostration accompanies the poisonous influences of snake virus.

SPIDERS.

The Century Dictionary, in defining the word Spider, gives the following: "Spiders, though popularly considered insects, are instead true insecta, since they have eight legs instead of six, normally seven jointed, and no developed wings. They are dimerosomatous, that is, have the body divided into two principal regions, the cephalaphorax, or head and chest, together; and the abdomen, which is generally tumored or globose, whence the name Spheaerogastra. No attenae are developed as such, but there are raptorial organs, called falces, which are sub-chelate, that is, have a distal joint folding down on the neck like the blade of a pocket knife. In the poisonous species, the falces are traversed by the duct of a venom gland. Some are the most poisonous animals in existence in proportion to their size; that the bite of a spider can be fatal to man, implies a venom vastly more powerful than that of the most poisonous snake. Spiders breathe by means of pulmonary sacs or lung sacs, nearly always in connection with trachea, or spiracles, whence they are called pulmotrachae; these sacs are two to four in number, whence a division of spiders into dipneumonous and tetrapneumonous araneids. Most spiders belong to the dipneumonas,

they have usually eight eyes, sometimes six, rarely four. In one genus (Nops) only two. The abdomen is always distinctly ordinarily globose, never segmented, and provided with two or more pair of spinarets. The characteristic habit is to spin webs to catch their prey, or make a nest for themselves, or for both these purposes. Cobweb is a fine silky substance, secreted by the arachnidium, or arachinidial mammillae which opens on pappillae at or near the end of the abdomen, and through which, the viscid material is spun out in fine gossamer threads. Gossamer or spider silk, not alone serves for nests and prey, but also as a means of moving from one place to another, dropping speedily, making a flying bridge across an interval, even to fly by buoying the spider who is wafted from place to place. Some spiders are sedentary, others vagabonds; the former are called Orbiletarian, Retiletarian, Tubitelarian, etc., according to the character of their webs. Spiders move by running in various directions, or by leaping, whence the vagabond species have been described as rectigrade, laterigrade and citigrade, soltigrade, etc. They lay numerous eggs, usually enclosed in a sack or cocoon. The male is commonly much smaller than the female, and in impregnating the female runs great risk of being devoured. The difference in size is as if the human female should be from sixty to seventy feet tall. Spiders are carnivorous and highly predatory. Some of the largest type are able to kill small birds, whence the name Bird Spiders, of some of the great hairy mygalids."

A few spiders are aquatic, as the water spider, genius Argyroneta. Wolf spiders, or tarantulas, belong to the family Lycosidae. The female spider is the dangerous sex, like that of the females of many other dangerous and pestiferous insects.

The first class of spider demanding our attention is the deadly, small, smooth, shiny black species, dotted with red at the lower end of abdomen, scientifically known as the Latrodectus Mactams. He belongs to the Dipneumonous division of spiders, genus Retitelarian family Pheridiide. It forms an irregular web upon the ground, under the seats of water closets, to catch her prey, and hides in a small silken cell in the vicinity. The poison glands are large, but the fangs are small. This spider appeared in 1830 in

large numbers in some regions of Spain, according to Reilly, in his Poisonous Insects, and created widespread fear on account of the poisonous effect of the bite. In 1833, it appeared again, and farmers hardly dared to leave their houses. During the harvest many people were dangerously bitten. This species has a wide area of distribution. The other poisonous species found in Texas is the Tripunctatis, one of the Phydippus family, known as the Phydippus Tripunctatus. This is a hairy, black specimen, with a red spot or streak on the upper part of abdomen, and belongs to the wandering or vagabond genus. These fellows are very predatory, catlike in their action.

The poisonous secretion of spiders is an oily clear fluid with acid reaction; it is a cellular creation of the epithelial cells lining the poison gland. The symptoms of poison bite are local and systemic; the immediate local signs is a pain like from a slight burn, followed within half an hour by a bandlike pain extending over the abdomen, chest, groins, lumbar region, nape of neck, and finally cerebral, followed by unconsciousness and convulsions. Systemically there is induced severe rigors, nausea, depression of heart's action, lowered temperature, cold perspiration, rheumatic pains, bandlike waves occurring periodically, diffuse, intense restlessness, bloody diarrhea and hematuria. These symptoms last several days.

The prognosis should be based upon the species of the spider, locality of the bite, treatment, size of patient bitten, season, during the months of March and April, when the female Lathrodectis is breeding and guarding her young, the venom is more toxic.

The symptoms of the Phydippus Tripunctatis bite locally, a little swelling, accompanied by great pain, itching and inflammation. Systemically, chilliness, rigors, restlessness, variable pains, bandilke, at times convulsions. These symptoms last several days. Pathological changes of spider bites, sloughing at point of punctures, necrosis along line of lymphatics, draining the area.

The treatment should be local and general. Pot. permang. 1 per cent. sol. Indigo, saturated solution, chromic acid, 1/100, and other coagulating agents should be injected at sight of puncture, if case is seen early. If not, wound should be treated antiseptically. A

ligature applied at time of bite, when injury is to an extremity, followed by scarifying, and massaging of the swollen tissues, theoretically should answer well. Systemically, sedatives, as morphine, should be used to control the pain. Remedies by mouth to coagulate poison that has been carried to the stomach; sodium or potassium bromide would accomplish this purpose as well as acting as sedatives. Heart and respiratory stimulants, as in meeting symptoms of snake's venomous bite, *i. e.*, alcohol, ammonia and strychnia, diaphoretics, purgatives and diuretics.

In reply to letters of inquiry, I have received the following reports of cases:

GOLIAD, TEXAS, April 15, 1902.

Dr. Hugh Crouse, Victoria.

MY DEAR DOCTOR: In answer to your letter of the 9th inst., regarding my experience with the poisonous snakes and spiders of Texas, I will say that on looking over my case book, I find the following:

CASE I. A. Male, age 5. Bitten by Rattler on thumb while in act of catching snake; saw him one-half hour later, part much swollen and painful; treatment externally, saturated cotton with F. E. cedron seed and applied as often as dressing became dry; internally gave five drops F. E. cedron seed every twenty minutes for three doses, then every hour; pain and swelling subsided in few hours; boy up and moving and no other treatment required.

CASE II. E. Male, age 12. Bitten by Rattler on lower third tibia; saw him four hours after receipt of same; suffering considerably with pain, much swelling, heart weak; treatment, internally, strich. and aro. spts. ammon.; externally, F. E. cedron seed and hypo-injections of pot. permang., one per cent. around wound; pain lasted some hours, used opium to ease. Patient made uneventful recovery.

CASE III. Male, age 40. Bitten on instep of foot by Rattler. He applied carb. acid, C. P. I saw him some days later; he stated that the acid relieved the pain and prevented swelling, but at the time I examined the foot, there was quite a portion of the instep that sloughed, I believe, due to the acid; treated wound antiseptically; five or six weeks before he could use the foot at all.

CASE IV. Negro boy, age 10. Bitten by Rattler on calf of leg; saw him two hours after; his father in meantime had corded limb and flashed injured part with powder; he was suffering intensely; no swelling; treatment, spts. ammon. aro. and strych.; used morphia to quiet and used pot. permang. one per cent. hypo. around seat of injury. Recovered in a few days.

Will state I used whisky with all the above cases; cases II and IV complain of pain each year at about the same time they were bitten.

CASE V. Negro boy, age 10. Bitten by Water Moccasin on foot while in bathing; saw him next day; complained of very little pain; no swelling; used ichthyol locally.

SPIDER BITES.

CASE I. G. Male, age 6. Bitten by small red spider on the arm at the beginning of the deltoid muscle; complained of great pain, pain shifting from arm to foot and *vice versa;* heart weak, and patient had anxious look; controlled pain with tr. opii camp.; used no local treatment, as it was ten or twelve hours after being bitten; internally, gave digitalis and strych.; patient up next evening and has had no return of pain.

CASE II. D. Negro, male, age 40. Bitten on penis by spider while in water closet; pain intense; required one-half gr. morph. to ease; no local treatment; used strych. and spts. ammon. aro., internally; recovered completely in two or three days.

CASE III. C. Male, age 30. Bitten by spider, red back variety, on ring finger; saw him at once and corded the finger and made incision; applied ammon. and sol. indigo; incision seemed to have relieved the pain; patient went to work the next day.

Now, doctor, I have given you briefly condition of these patients when I recorded them. I should have been more careful in making these records, but at that time I did not think I would use them for publication. I have had several other cases, but failed to make note and cannot remember them, but have never lost a patient by either spider or snake.

I will make this statement, that alcohol in spider bites will always increase pain.

My treatment in snake bites if seen early is to make an incision and allow them to bleed freely, and apply an alkali, using one per cent. pot. permang. and giving strych. and spts. ammon. aro. if needed and keep close watch on the heart.

In conclusion, will say that if I can be of any further use, command me.

Very truly yours,

[Signed.] L. W. CHILTON.

CORPUS CHRISTI, TEXAS, April 14, 1902.

Hugh Crouse, M. D.

DEAR DOCTOR:—Your letter of the 9th came in due time. I regret very much that I cannot help you in the matter of your paper, which I am sure will be an interesting one, as well as one out of the common. Of course, I have had some experience in the care and treatment of snake bites, but they have all of them been typical text-book cases, and only cases of the Rattlesnake variety. In each case adenitis and sloughing occurred,

though all recovered after a few weeks' treatment. I have always thought that a healthy individual need not die from Rattlesnake poison, that is, if not injected directly into a vein. Frequently more harm is done with the enormous amount of whisky used, than the poison itself is ever guilty of. I believe, too, that the venom is fully as potent in cold as in warm weather. I have had a few cases of Tarantula bites, but the damage done was very insignificant.

With very kind regards, and trusting everything is well with you, I am,

Very sincerely yours,

A. G. HEANEY.

LAREDO, TEXAS, April 20, 1902.

Dr. H. Crouse, Victoria, Texas.

DEAR DOCTOR: It will be impossible for me to give you tabulated cases of snake bites, Tarantula, Scorpion and Centipedes, for they have been too numerable to have kept a record of. We have more trouble with the Diamondhead Rattler than any other species, some of them having tushes three-fourths of an inch long, and their size reaching as large as six feet long and three inches in diameter. When they bite an animal or person; it is impossible for them to release themselves until killed. My treatment in these cases has been first to ligate above bite, if on arm or leg, and cauterize with acid nitrate of mercury, then apply a solution of permanganate of potass., 1 to 1000, also giving a tablespoonful of same solution every hour, removing ligature as soon as parts show signs of strangulation. Morphine is sometimes given to relieve pain. One case of a Mexican: his arm was ligated, twenty-four hours before I saw him, which resulted in gangrene of the arm requiring amputation. I find the bite of these classes of snakes fatal to dogs, some dying inside of an hour. We have had more cases of coyote bites this year than snakes, and in these cases have employed the permanganate treatment with successful results. The permanganate treatment was given me by Dr. Henderson, of Jamaica, who had employed it in treatment of bites of the Cobra for a number of years without the loss of a single case, where he was called the same day party was bitten, and in my practice of twenty years on the Rio Grande, I can say the same. I would be glad to write you a longer article on the subject, but my time will not permit. Hoping these few lines will be of some interest to you, I remain,

Yours truly,

A. W. WILCOX, M. D.

BAY CITY, TEXAS, April 17, 1902.

H. W. Crouse, M. D., Victoria, Texas.

DEAR DOCTOR: Your letter of inquiry as to poisonous insects and snakes to hand. I am sorry not to be able to give you much information. I

have treated four or five children bitten by snakes, Moccasin and Copperhead. The leg always, and as several miles had to be traveled before I reached them, the leg always was corded when I arrived, a good deal of swelling of leg below the ligature and around the wound, as much from the cord as from the bite, I would think. They had always been given whisky or some form of alcohol before my visit, and most of them had an incision into the wound by some friend with a pocket knife, and common indigo in solution applied to the wound. The patients claiming where this had been done at once it was always satisfactory. This I can see no reason for. I read an article in the *N. Y. Medical News* some four years ago, from a physician in South America, of Cobra snake bite, and he claimed by giving sulph. of strychnia 1-20 gr. hypodermically, and repeat in one hour until physiological symptoms were developed, when cases were seen early he had relieved ten or twelve of them. As to spiders, the little black spider, with a spot on his back, seems to be the one that causes most trouble, the parts around the bite always slough off. I have never encountered any cases from the bites of either with much constitutional disturbance.

Yours truly,

JAMES BYARS.

WELL CAMP, TEXAS, March 27, 1902.

Dr. Hugh W. Crouse, Victoria, Texas.

DEAR SIR: In reply to your request for my personal experience from the bite of a spider, Latrodectus Mactams, will say: In the month of October, 1865, I was hunting in the woods three miles north of Hallettsville, Lavaca county. Thrusting my hand into a blackjack stump, I felt a sharp pain in the back of my hand, between the thumb and forefinger, right hand. Withdrawing it quickly, I found a spider, Latrodectus Mactams, fastened to my hand. I crushed it and proceeded with my investigations. In a few minutes my hand began to tingle, like it had been asleep, and a place around the bite, the size of half a dollar, began to discolor. I started for home about one mile away. In the meantime the tingling had turned to a thousand needles being thrust into my hand and arm as high as the elbow, and I got sick at the stomach, and when about half way home I lay down and vomited freely. Arriving at home, I had another vomiting spell and felt very faint, and the pain in my arm was going up. There was very little swelling in the arm, but the spot around the bite had turned the color of dead flesh, and the nausea was very great. I secured a horse and started for town, three miles to a doctor. Six times in the three miles I stopped to vomit, and when I got to town the intense pricking pain had gone up my arm and around to the shoulder blade. I went straight to the office of Dr. Troup. My eyesight was dim, my brain was muddled, the nausea was intense, and the pain in my hand, arm and

shoulder was very severe, and I had lost all mental fear of what the result might be. The doctor gave me something which relieved all pain and I went to sleep. When I awakened he was examining my shoulder and arm. About where vaccine is generally placed on the arm was another place similar to the one around the bite, and still another on the shoulder blade. They were all about the same size and color, slightly raised and hard. I was in bed two days. About the fifth day a sharp line had separated the healthy flesh from the diseased flesh at the three swollen places, and the dead flesh fell out in a lump, leaving a clean healthy hole that would hide about two half dollars. I lost flesh and it was about a month before I regained my usual health. I do not know what remedies Dr. Troup used.

Please excuse pencil, as we have neither pen nor ink in camp.

Very truly, your friend,

J. D. MITCHELL.

BURNET, TEXAS, April 17, 1902.

Dr. Crouse.

DEAR DOCTOR: In reply to yours of the 11th, I report the following case: Calvin H., male, age 12. Bitten by a Rattlesnake on left leg a little below the knee on the 28th of September, 1900. I arrived an hour after he was bitten; gave whisky freely, bandaged the limb above the bite, cupped the bitten area and injected pot. permanganate in several places around the wound, gradually loosened the bandage and left him on whisky and strych., applying ammonia to the wound. September 29th: Leg badly swollen and turning dark, high fever, pushed stimulants, wrapped entire limb in bandages and kept it constantly wet with the following: ℞ Aq. ammo., aq. camph., sodii chloridi, aquæ pura, Q. S. Cold sponging for fever. September 30th: Limb very black and badly swollen, left side of body dark. Fever very high, pulse very weak. Cold sponging continued, pushed stimulants freely. Put hot poultices around limb and left side, and kept the bandage constantly wet with the above solution. October 1st: Some improvement, treatment kept up. From now on he continued to improve and made an uneventful recovery. Of course, his bowels and kidneys were looked after through his entire sickness.

The above is the treatment usually followed by me. Of course, modified as circumstances require. Have had no recurrent symptoms.

Hoping the above may be of some use to you, I remain yours,

A. HOWELL.

EDNA, TEXAS, April 8, 1902.

Dr. H. W. Crouse, Victoria, Texas.

DEAR DOCTOR: On the 17th of June, 1899, I attended a negro boy, age five years, who was bitten on dorsum of right hand, about three-fourths of an inch from outer border, by a Diamondbacked Rattler. The snake

was very large, measuring five and one-half feet long. Constriction was not applied above the wound until about twenty minutes had elapsed, as the boy's story about the snake was not credited until the snake was found. I saw the little patient at 3:40 p. m., two hours and forty minutes after he had received the wound, and found the following: Just below the elbow the parents had tied a piece of a suspender, and the arm was plastered with mud. Patient very much prostrated, extremities cold, pulse 162 and scarcely perceptible at the wrist, respiration forty-eight and very shallow, moist bubbling in abundance over both lungs. Temperature 97° F. Pupils contracted and conjunctiva intensely hyperæmic. Stomach irritable, vomiting a frothy mucous about every two minutes. Patient unable to retain anything. No marked swelling of hand, though parents stated that swelling was great shortly after he was bitten. Cutaneous anesthesia, which was general. Up to this time the child had received nothing to counteract the effect of the venom. As quickly as possible I injected hypodermically nitrate strychnia 1-20 in whisky. The whisky was repeated every few minutes. The wound was incised and injected thoroughly with a solution of potasii permanganate. 3:52 p. m. Pulse 132 and of good volume. I eased up on the constriction, but unfortunately allowed the system to take up too much of the venom, which caused the child to become more prostrated, pulse rapidly disappeared at wrist and elbow, respiration more hurried, comatose, but was easily aroused and mind perfectly clear when awake. I should have stated that the mind was clear all the way through when the child was aroused. He tried to urinate once, but could not. Not having a small catheter with me, and him telling me that his bladder did not distress him much, I made no attempt to empty the bladder, as I could see that he would live but a little while. He rapidly became weaker, and just before he died (7:30 p. m.) had a slight general convulsion.

E. A. MALSCH.

SNAKE BITES.

CASE I. Child, age 4 years. Two distinct wounds on left foot. Limb badly swollen, pupils contracted, pulse and respiration much accelerated. Nervous twitching of muscles. Injected a two per cent. sol. potass. permanganate in each wound and also in calf of leg. Gave strychnia every three hours, first dose (hypod.) till pulse was nearly normal. Six hours after injections of permanganate swelling was almost entirely gone, respiration and pulse very good. Had no further trouble and child was playing as usual next day. When child was playing, its father found two snakes together under a box and killed them. They were of the Copperhead variety and classed as very poisonous. Did one of the snakes do all of the biting, or did both indulge in taking a bite apiece?

CASE II. Negro boy, age 10. Bitten on left calf by Moccasin. Injected

a one per cent. sol. P. P. in wound, also in left thigh. Next day was out at work. Did not give anything else but the two injections.

CASE III. Boy, age 5 (German). Bitten on leg by Copperhead; injected a one per cent. sol. in wound and also on leg above knee. No other treatment.

CASE IV. Negro woman. Bitten on big toe of right foot by Moccasin. Did not see her for two or three hours after bite. Leg swollen up to thigh. Injected a one per cent. sol. P. P. in wound, one in calf and also another in thigh. Gave strychnia as needed. Next day swelling subsided and patient thought she was well and went to work. Three days later leg commenced swelling, with severe pain in joints. Put her on the salicylates and in a few days she was well. This same woman ten days from time of first bite was picking berries and was bitten on left foot by Copperhead. There was no swelling and very little pain. I used the P. P. as before and she never stopped work. In all of these cases I applied absorbent cotton dipped in a saturated sol. P. P. to wound and kept it continually soaked with same. Am sorry in above case that I used any treatment, as I believe the treatment for first bite would have in so short a time been sufficient for the last. I have treated quite a number of patients for snake bites, and three years ago had twenty cases in less than four months, but the above cases outlined were I consider the most serious, and I did not see any of them within two hours after being bitten. Some had the limb corded tightly above bite, but I could not see any difference in results.

I also treat spider bites the same way, with equally good success. I have never had any abscess to follow a single injection of the P. P., as many writers complain of. I use a clean syringe and inject deep in the tissues. I consider permanganate of Potassa, when injected correctly, to be a remedy one can fully rely upon, and I have no fear as to prognosis of any of my cases when so treated.

I have not had time to more than briefly outline these cases, but hope it will impress the value I hold P. P. in poisonous bites of insects and reptiles.

A. S. CROCKER, M. D.

My personal experience from the venomous accidents of serpents has been confined, with the exception of one case, to the bite of the Ground Rattler. The four cases that I have met had nothing distinctly peculiar about them. The limbs had been constricted, the cases were seen soon after the injury, and were treated by permang. pot. locally injected, two grains by mouth every couple of hours, strychnia, small doses of alcohol, and quiet. All recovered. April

25th, a small Mexican boy, aged 11 years, was brought to the hospital at 1 p. m., in the last stages preceding death, as a result of a moccasin bite, received at the outer portion of the right calf. The child was pulseless, pupils widely dilated, respiration stertorous, skin cyanosed, extremities cold, limb not swollen. The distance between fang punctures was one and one-half inches. Treatment: strychnia, according to Mueller; recognizing the desperate nature of the case 3/8 of a grain was given hypodermically, followed by nitroglycerine, pilocarpine, 1/40 of a grain; artificial respiration, heat to the body, and attempts to rouse. The strychnia, nitroglycerine were repeated in fifteen minutes. The site of the wound was injected with one per cent. sol. pot. permang. by nurse, area scarified and massaged. The child died twenty-five minutes after being in the hospital. The history given by the Mexican with him when bitten was that he had been struck at 9 o'clock in the morning; that the child became stupid in twenty minutes; that the snake was seen, and was the Water Moccasin species. Nothing had been done, the limb not even constricted, until 11 a. m.; nothing further until brought to the hospital at 1 p. m. On account of the condition of the child, stomach lavage could not be used. In fact, the child was practically dead on entering the hospital.

My experience in spider bites has been confined to two cases. Cases seen late, second or third day; treatment antiseptic application to sloughing areas. Location of bites, the privates. Result, recovery. I am convinced, after studying carefully the effects of spider bite, that the symptoms of pain are due to the influence of the poison upon the nerve end; that we have in consequence a condition analagous to, or rather an acute peripheral neuritis, furious in its nature.

SYMPOSIUM ON PNEUMONIA.

PATHOLOGY OF LOBAR PNEUMONIA.

R. W. KNOX, M. D.,
HOUSTON, TEXAS.

In taking a retrospective glance at the history of pneumonia and the various theories that have been advanced regarding every phase of the disease, we are forcibly reminded of the adage that "Times change and we change with them."

It is not necessary to search the archives of the renowned Watson, or the gifted Meigs and Pepper to get ancient history regarding pneumonia. We have only to look up our modern text-books dating back not more than half a score of years, and to contrast the ideas therein advanced with the more recent literature to appreciate the iconoclastic hand of modern research.

How little did we imagine a few years ago that pneumonia was an infectious disease, and that care should be exercised to prevent its spread as in other epidemic diseases. Nor is this our only surprise: a recent writer in the "Twentieth Century Practice of Medicine" proves at least to his own satisfaction that an uncomplicated case of lobar pneumonia is not an inflammatory process.

These revolutionary theories regarding the pathological processes involved in this disease began with the discovery by Fraenkel in 1884 of the *diplococcus pneumoniæ*. This micro-organism was isolated by Sternberg a few years before this date, and was obtained from his own saliva, but no causative relation was supposed to exist between this germ and a disease of the lungs.

While it is true that the pneumococcus does not answer all of Koch's celebrated laws as a causative agent, its invariable presence in pneumonia, together with its behavior in other respects, lead us to believe that it takes a high rank as an etiological factor.

The first question that naturally presents itself is, How and under what circumstances does the germ gain access to terminal bronchioles and air cells? They are invariably found in healthy saliva, and the secretion of the larger bronchi, and their presence in these locations do not seem to be conducive, under ordinary circumstances, to any special harm.

From what source they come we have not been able to even so much as conjecture. It may be possible that the germ has no saprophytic existence, but that its normal habitat is the buccal and respiratory secretions. It is the generally accepted theory that the germ assumes a pathological significance only when there is a lowered vitality or lessened resistance on the part of the body.

The analogy is borne out in the case of the bacillus tuberculosis. We all come in contact with this germ, but only a certain per cent. contract consumption. This lowered resistance may be brought about by exposure and taking cold, or probably, as is often the case, by one of the exanthematous diseases. It is certain that the normal lung does not allow such an invasion. The irritation set up on the delicate alveolar structure by the presence of the invader causes the pouring out of a fibrinous exudate from the functional capillaries. This is the material which causes the consolidation of the lung, but, more important than this, furnishes a culture medium for the propagation of the active agent, and the development of a most virulent toxin.

The chill that is so often seen in pneumonia is thought to be caused by the absorption of a certain quantity of this poison; also that the degree of fever is an outward indication of the amount of poison circulating in the blood. After a variable length of time, usually from four to eight days, a crisis occurs, the fever drops nearly to normal and the entire aspect of the patient is changed.

In no other disease do we have such a sudden defervescence of such serious symptoms. While the physical symptoms in the lungs appear unchanged, the appearance of the patient, his feelings, temperature, etc., have made a sudden and most remarkable improvement.

Various theories are advanced to account for the crisis in this

disease: first, the accumulation of a free acid in the parenchematous structure of the lungs deposited by the nutritive capillaries. The failure to neutralize this by the soda of the blood is due to the blocking of the functional circulation. The acid in this case acts as an antitoxin. Second, in laboratory experiments the pneumococcus is known to be short lived, and soon exhausts itself in any culture media if the same is not replenished. An identical process is thought to take place in the air cells, the pneumococcus exhausting its culture medium, and in consequence failing in the further production of pneumotoxin. Third, the antitoxin theory. To the Klemperer brothers is due the advancement of this idea. Their claim is that the pneumotoxin produces an antitoxin, which in turn neutralizes the original poison. They have made numerous experiments upon the lower animals in conformation of this theory.

One of the most remarkable facts in connection with an uncomplicated case of lobar pneumonia, besides the crisis, is the rapidity in which the lungs are cleared, and the small amount of damage done to the delicate alveolar structure.

In no other organ except the lungs could such a result be possible, and the reason for it is explained in Dr. A. H. Smith's excellent article on pneumonia in the "Twentieth Century Practice of Medicine." He states that the bronchial arteries which perform a nutritive function to the lung structure play a most important part when the pulmonary circulation is blocked. They hasten secretion and relieve the congestion, which would otherwise be fatal to the lung structure. It is important also to note that the gravity of the symptoms and height of fever is not dependent upon the amount of lung involvement. In some of the most serious cases a careful examination may only reveal a small spot of involvement, and cases are on record where the physical examination was entirely negative, and yet the patient succumbed to the disease.

In all these cases the breathing is just as rapid as if the entire lung was involved. From these facts we are of the opinion that the inflammation of the lungs, if such really exists in the true sense of the term, cuts but a small figure in the pathological process; that the lungs in fact only act as a culture field for the development

of a poison which affects the entire system, and has a tendency to paralyze the circulatory and respiratory systems; that this poison has a self-limited course and if the patient is able to withstand its violence for a certain length of time, a perfect recovery is assured. This of course will only apply to uncomplicated cases of lobar pneumonia, as in all other diseases complications are liable to arise, and the course of the disease is modified accordingly.

In the very old, or the very young, in alcoholic or tuberculosis subjects resolution is not so liable to occur, and the disease may run a protracted course; also in rare cases the pneumococci may invade other organs, among which may be mentioned the meninges of the brain, the pericardium and endocardium, and also the kidneys.

Pneumonia differs from all other infectious diseases, in that one attack, instead of giving immunity, on the contrary, predisposes to a recurrence.

In summing up the situation we might state conclusively that pneumonia is an infectious disease; that it is due to a minute form of animal life, known as the "diplococcus of Fraenkel"; that it is found in health in the secretions of the mouth and bronchial tract; that for some unknown reason due either to a lowered vitality on the part of the system or an increased virulence on the part of the organism, the natural barriers to the lung cells are thrown down and the disease begins its course.

While it is true that the "pneumococcus of Fraenkel" does not answer all the indications of lobar pneumonia, it is the most rational hypothesis yet proposed for a disease whose pathology has always been shrouded in the deepest mystery.

ETIOLOGY AND SYMPTOMS OF PNEUMONIA.

S. C. RED, M. D.,
HOUSTON, TEXAS.

Pneumonitis is a term that I prefer to use, since such nomenclature seems to be more in harmony with the ordinary way of expressing inflammatory processes in other organs and tissues. Under the term pneumonitis, then, I am pleased to treat of the etiology and symptomatology of the various pneumonitii commonly met with by the general practitioner.

ETIOLOGY.

A large majority of the inflammatory affections of the lungs are due to the presence of the pneumococcus. In fact, its absence in doubtful cases would almost contra-indicate the diagnosis. Its presence, however, does not always indicate the disease, since it sometimes occurs in healthy individuals. Other causative agents are influenza bacillus, streptococcus pyogones, staphylococcus aureus et albus, and diphtheria bacillus. In the beginning of an attack the pneumococcus may be alone, but usually two or more of the other are associated together, *i. e.,* a process due, say, to the presence of the streptococcus would have two or more of the others aiding.

Exciting causes would be, foreign bodies drawn into the air passages, such as particles of coal or stone; irritating vapors; laceration or puncture of the lung tissue; perforation of the same tissues by rupture of an abscess, as of the pleura or liver; impaired circulation, as from heart disease, or wasting diseases of any character; and, finally, any agency lowering the vitality of any part of the lung, such as pertussus, measles, exposure and scarlet fever.

SYMPTOMS.

These are dependent, in a great measure, upon the vitality of the tissue affected, the age and the habits of the individual. No one symptom can be said to be significant of the disease; yet a series of symptoms, as a rule, give a clinical picture so plain that the average head of a household can make the diagnosis even before the arrival of the physician.

The clinical picture most often seen in Texas is the one dependent upon inflammation effecting the mucous and submucous membranes of the bronchi, smaller air passages and vessicles. This condition is usually the result of an extension of the disease from the bronchi downward to the tissues as named above. It is frequently secondary to some pre-existing affection either local to the lung, as tuberculosis, or some general disease, as measles or scarlet fever. When not secondary to some other disease it begins with a chill and fever. There is also an increased rapidity of respiration and pulse, and a more or less distressing cough, the cough bringing forth an abundant supply of mucus, streaked with blood. The sputa, in a few days, ceases to be blood streaked and becomes more purulent. Dullness on percussion is often absent, and, when found, is usually along the lower lobes near the spine. Dependent upon the amount of consolidation, there will be more or less pronounced vocal fremitus and bronchophony. Rales of all kinds may be present and quite generally distributed throughout the lung.

The elevation of the temperature is in no way characteristic. It may be either remittent, intermittent or wholly absent. In children, the intermittent character of the fever is often suggestive of malaria. It, that is the fever, is usually attended upon the acute stage of the disease, but in some cases runs on for some months.

Pain is not ordinarily a prominent symptom. In children, however, the pain, when present, is referred to the stomach, due doubtless to the unusual use of those muscles in the embarrassed respiration.

The disease rarely terminates by a crisis, but continues from a few days to many weeks. Owing to anatomic conditions this is the

variety most often found in the extremes of age. And in them it occasionally presents so few of the physical signs as to be recognized only at the post mortem.

In the epidemic through which Houston has recently passed, the disease was frequently a complication of la grippe. The last named disease seemed to have effected the vagus in such a manner as to allow the heart to flutter its force away. With apparently neither any special elevation of temperature nor embarrassment of respiration, the heart beats would reach anywhere from 120 to 150 per minute. With two such diseases associated of course the mortality was not lowered from the usual rate.

LOBAR PNEUMONITIS.

In that form of inflammatory change in the lung tissue, where the parenchyma of the lung is the seat of lesion, a somewhat different clinical picture is presented. It ordinarily begins with a chill, followed by a rapid rise of temperature, at times reaches 107°. The pulse, as some authors say, increases proportionally to the rate of the respiration. Individually this has not been my experience. With me it has followed the usual rule, viz., an increase of ten pulse beats for every degree of elevation of temperature. At first the pulse is felt bounding with the pulmonic second sound of the heart well accentuated. Later, particularly in fatal cases, the pulse becomes weak and rapid; and the heart pulmonic second sound faint or absent. This heart sound is the best possible index of your patient's condition. The respiration is hurried, reaching even eighty or ninety per minute. According to the area involved, it becomes labored. In extremely grave and fatal cases the glotis insensibly rises and falls with each respiration. Albumen in the urine is a frequent occurrence. Urinary chlorids are also diminished or wholly absent. Vocal femitus, over the consolidated area, is a marked feature; provided, however, that the tissue involved is sufficiently large and not confined to the center of the lobe. Percussion dullness is shown over the affected area. Crepitant and sub-

crepitant rales are heard before consolidation takes place, and then bronchial breathing supervenes.

When the two stages of engorgement and red hepatization are passed, we have subcrepitant and mucous rales in the area affected. The sputa is either rusty or prune juiced in appearance up until the third stage, when it becomes yellow from the presence of pus. Pain is a prominent symptom when the pleura is affected, and it ordinarily is. The seat of pain may be anywhere, even in the great toe, but the most common place is at or about the nipple. The blush that is found on the cheek of the side involved is, for obvious reasons, not demonstrable in "those of the African race." This is one of those rare diseases that terminates by crisis. The critical day is the fifth or seventh from the initial chill. This day usually comes on with a profuse sweat, when the temperature falls to or below normal. Chronic parenchymatous pneumonitis furnishes a suitable nidus for the tubercular bacilli and so terminates or leads to cicatrization of the parenchyma, and consequently gives rise to the "tinder box" lung, i. e., where the air spaces are greatly increased, or else to atrophy of the lung, i. e., where the chest is taken up by the cavity of the pleura and half the lung becomes merely a greatly reduced mass of cicatricial tissue.

The disease is at times epidemic, although, in the popular meaning of the term, it is not contagious. The recent epidemic in Houston was, in my opinion, due to the pneumonitis coming as a sequel of la grippe. It was mostly catarrhal in character, and gave rise to a mortality of twenty-three per cent. The amount of parenchymatous pneumonitis, however, was not inconsiderable, and according to my experience affected negroes chiefly. At all times, however, the catarrhal variety is the most often met with in Houston. Whether or not it is due, as has been suggested, to the humidity of the atmosphere, I am unprepared to say, since I have not had the opportunity to investigate this disease in localities of equal humidity. The fact remains, however, and is open to explanation. The recognition of pneumonitis is not always an easy matter, as you are well aware. We stumble upon it in a most unexpected way sometimes. For this reason it is desirable to make close examination of the

chest in those suffering with delirium tremens and obscure inflammatory affections, both in the young and old. No matter how careful we may be, there are cases in which only the post mortem room can make the diagnosis. Fortunately, however, for the welfare of both patient and physician, the diagnosis of pneumonitis is easy, so easy that "he who runs may read."

TREATMENT OF PNEUMONIA.

R. T. MORRIS, M. D.,
HOUSTON, TEXAS.

A review of a small part of the literature of the past one hundred years pertaining to this disease, and a comparative study of its mortality under different lines of treatment, warrants the statement that we do not possess a specific treatment; that in about eighty-eight per cent. of the cases the tendency is towards recovery in spite of treatment.

The study of the rise and fall of specifics with this malady causes us to be skeptical of the peans of praise of the latest treatment.

I regret that in this paper I can not advocate any special drug; I can only present the methods of administering the alleged specifics, permitting you to take your choice, fully realizing that the results in the end will be practically the same.

During the early years of the century just closed, when the germ theory of disease never entered into the dreams of the most visionary theorist, the following treatment was advocated:

1. General and local bleeding.
2. A brisk purge at the commencement, for instance:

℞ Hydrargyae submuriatis .....gr. v
Conservae rosae gallicae.....gr. v
Fiat pilula statim sumenda, superbibendo haustum sequentum.

℞ Potassae tartratis 3i
Infusi sennae 3xv
Syrupi auranti 3i
Fiat haustus.

When the violence of the febrile action is somewhat abated and pulse continues very frequent, digitalis is of great use; it may be added to the common saline draught, for instance:

℞ Liquoris ammoniae acetatis.....3iii
Tincturae digitalis .....m. iv
Syrupi rosae 3i
Aquae menthae viridis.....3i

Fiat haustus quartis horis sumendus.

3. The strength must be supported by farinaceous foods, mixed with mild and dilute wine; also camphor and carbonate of ammonia should be given.

The above extracts are presented so that we can more readily compare the treatment then with the treatment now, and can appreciate how insignificant the progress has been during that period.

The first alleged specific that will be presented for your consideration is creosote. The champions of this drug are extremely enthusiastic and are very persistent, and if we did not recall similar claims made by the advocates of other specifics for pneumonia, we would almost be persuaded. Unfortunately, the experience of the great body of the profession, as far as I can learn, differs from the experience of the apostles of creosote, who more especially are Van Zandt, Eberson, Gracey, Frieser and Webber.

Beechwood, or carbonate of creosote, is more frequently given. Van Zandt administers the carbonate, seven and one-half grs. in acacia every three hours; Webber gives four grs. of the carbonate in gelatine capsules, ten or twelve capsules daily.

The effect of creosote in pneumonia as stated by a few is simply startling. Dr. Van Zandt is greatly disappointed if after the administration of the drug the patient is not dismissed by the third or fourth day. He treated sixteen cases during the winter of 1900 with no fatality, dismissing nine out of the sixteen cases before the end of the third day. He further states that creosote in acute pneumonia is one of the greatest life-saving discoveries of the century just closed.

Dr. Eberson used creosote in twenty-three cases and saw fever fall within twenty-four hours, with outbreak of sweat. He thinks that it cuts the disease short, and that resolution takes place rapidly and safely. The dose he recommends is about ninety grains per day. He mentions one case where on the second day there was

no trace of fever, the child was playing, it was hungry and bright, and cough had ceased.

Unfortunately neither Dr. Van Zandt or Dr. Eberson give clinical histories, but only make general statements. However, Dr. L. Webber has presented tabulated cases with definite clinical histories and I ask your indulgence while I analyze the same.

CASE No. 1. Patient admitted March 28th, with fully developed lobar pneumonia of left side; temperature, 102.5 degrees; pulse, 112; respiration, 40. Creosote given March 31st and during April 1st sixty grains were given, when temperature was 98 degrees; pulse, 96; and respiration, 22.

The history does not show that the creosote had any specific affect, the patient was admitted on March 28th, fully developed case; crisis occurred five days later while no mention was made of the duration of the case previous to entrance.

CASE No. 2. This patient had la grippe three weeks before admission, which was on the 31st of March, when the temperature was 101.5 degrees; pulse, 90; respiration, 28. Diagnosis, pneumonia of left lower lobe and part of upper lobe. Creosote was begun on April 1st and continued for ten days when 600 grains had been administered. Temperature never rose above 99 degrees after the first twenty-four hours. There is not the slightest evidence from this history that the disease was abridged, much less aborted.

CASE No. 3. Phthisis with pleurisy. This case has no bearing.

CASE No. 4 died and writer innocently states that patient was much improved by creosote, but succumbed to degenerative mycorditis.

CASE No. 5. On April 4th patient had chill, followed by fever, with pain in right half of thorax, and on April 6th pleuro-pneumonia, of moderate extent was discovered. Temperature, 101 degrees; pulse, 98; and respiration, 24. Here I wish to state that in my opinion a pleuro-pneumonia with a respiration of 24 per minute is extremely moderate; creosote carbonate, fifty or sixty grains daily were given, after which temperature never rose above 99 degrees.

CASE No. 6. Lobar pneumonia; admitted March 16th; resolu-

tion occurred April 12th. Creosote certainly did not hasten the crisis in this case.

CASE No. 7. Typical case of pneumonia; pain, fever, quick respiration, and rust-colored sputum. Pneumonia yielded to creosote in twenty-four hours, and patient was convalescent on fourth day. This history of this case is incomplete, inasmuch as there is no mention of duration previous to admission.

CASE No. 8. Lobar pneumonia existing two weeks before creosote was commenced. After eight days administration lungs gradually cleared. No comments necessary.

CASE No. 9. Lobar pneumonia seen on third day; creosote, sixty grains per day, was commenced. Resolution was completed on the tenth day. No startling results from the creosote.

A careful consideration of the cases quoted does not justify the praise that has been showered upon this drug, and I agree with Billings when he says, "the high opinion of the drug is not supported by sufficient clinical data to render it valuable." However, the drug is comparatively harmless and a more extended experience should be accorded it.

Quinine has been extensively advocated by Aufrecht, Petzold and others. Their method is to administer by the needle, during the active stage, one-half grain of the hydrochlorate, daily. Petzold's experience covers 261 cases, with a mortality of 8.8 per cent.—a very low mortality. However, Peel presents statistics to show that to reach a true estimate of the effect of the treatment, it should be compared year for year in different institutions on account of the verying mortality of the disease. Peel's mortality in his own hospital was 12.2 per cent.

TREATMENT WITH ANTI-PNEUMOCOCCIC SERUM.

This serum is anti-infectious, i. e., the serum is produced by the injection of the living germ instead of the toxic products of bacteria. In the preparation the serum differs from the diphtheria antitoxin.

J. N. Snively analyzes 106 cases treated with the serum and draws the following conclusions:

First. The serum is harmless.

Second. Its effect is favorable in early cases, and especially when there is no mixed infection.

G. E. Tyler reports six cases and the only effect he noticed was a lessening of the dyspnea.

Sears reports twelve cases treated by this method. In his opinion the serum does not alter the course of the disease, and his experience is negative, and the extravagant claims made as to its special effect receive but little support from him. An extension of the process in three cases after its use was noted by him.

Many are very hopeful that ultimately a anti-pneumococcic or anti-streptococcic serum will be made that will have a specific effect. When the infection becomes mixed and when we see so many varieties of the streplococci the task is a herculean one in its difficulties.

Dry cold to the chest is only an adjunct to the symptomatic treatment, and it will meet with much opposition from the public because of a senseless prejudice. It is an antipyretic and an analgesic and, in my opinion, will lessen congestion and subsequent consolidation. Cellers and Billinger consider dry cold to the chest as a valuable addition to our general treatment. High temperature and not physical signs has been the indication for the application of ice, and lowered temperature and not physical signs has been the indication for its removal.

SALINE INFUSIONS.

This method was first recommended by F. P. Henry, of Philadelphia, and in many cases will be of great benefit. Neuhoff in a recent contribution reports his experience with saline infusions in acute croupous pneumonia, and draws the following conclusions:

First. It is a useful adjunct to other treatment in selected cases.

Second. It acts as a powerful heart stimulant when other heart remedies can no longer sustain a flagging circulation.

Third. It increases secretion, moistens the throat, tongue and skin, and lessens delirium.

Fourth. It is contraindicated in pulmonary œdema.

He injects subcutaneously, generally under the breast, a decinormal (six per cent.) common salt solution, in quantity usually varying from one-half to one pint every six to twelve hours.

W. Evart and B. Percival, after using saline infusion in six cases, decided that there was no definite favorable influence upon the course of the disease.

In this *résumé* I have attempted, without prejudice, to place before you the different methods of combating this dreadful disease, hoping that we might be able to separate the chaff from the wheat, and agree upon some course that will lessen its mortality.

The treatment of 100 years ago is still worthy of consideration. Expectant and symptomatic is all I can offer. Such treatment has been followed at the clinic at Bonn with a mortality of 7.97 per cent., figures which compare favorably with any other line of treatment.

In treating this disease, I would suggest, however not didactically, the following:

Treat your patient, and your pneumonia incidentally. If the patient is strong and robust, depletion at the outset, calomel and soda five grains each, followed by magnesia sulphate, morphine to relieve pain, pleasant surroundings, equable temperature with an abundance of pure air, dry cold to chest to relieve temperature, followed by tepid bath if necessary. Beginning on second or third day concentrated nourishment every three hours, day and night. Strychnine, digitalis and whiskey if heart shows any indication of weakness, and if collapse is imminent, use hot applications and saline infusions. If patient is of low resisting power do not deplete, but support and nourish from the commencement. If patient is accustomed to his drink, continue it in increasing dose.

The treatment outlined will not cure all your pneumonia cases, but it will not obstruct the tendency of the disease, which is to recovery; and by pursuing such a course, you can keep the temperature within safe limits, you can administer wholesome nourishment, you can surround your patient with pure air and can stimulate a flagging circulation. And when you have followed such a

course you have done all that our present knowledge would warrant you in doing.

DISCUSSION.

DR. T. B. ARMSTRONG, though not a member of the Association, was allowed the privilege of the floor in order to discuss the papers. He spoke enthusiastically about the results that had been obtained by the treatment of pneumonia with creosote, quoting extensively from the writings of Van Zandt and others in support of his statements.

DR. W. B. MCKNIGHT, Mansfield: Three years ago I was inclined to believe that there was something in the creosote theory, and I tried the remedy with apparently good effects on some of my patients, but my later experiences have not been so satisfactory, and I cannot believe that it is a specific.

DR. S. H. STOUT, Dallas: During the fifty-nine years I have been in practice I have gone through the whole history of the treatment of pneumonia, and one thing that always struck me was the difficulty of making a diagnosis. How many of you could agree as to any of those cases that we have heard described whether they were really pneumonia or not. The same difficulty occurs in regard to other diseases. I recollect once of a series of four hundred cases diagnosed as diphtheria all of which got well. I studied the principles of medicine under good masters, and I do not look to the drug store for my treatment. I find I can practice medicine without doing that. In fact very few drugs are needed. It is easy to advertise new remedies, but they kill more people than they ever cure. It is time we came down to common sense in regard to this matter, and I for one say that I would like for every man who writes a paper in favor of these new remedies to be compelled to get on the witness stand and be cross-examined. Diseases of this kind cannot be cured in ten days. It takes time. Let us be conservative and face the facts. We have been so often deceived in the past that we should be on our guard against these stories of remarkable cures. I have tried all the remedies and have come to the conclusion that we must fall back upon rational treatment. Better that all the drug stores in the country be burned down than that we trust to the nostrum of quacks and patent medicine men.

DR. R. H. RUSH, DeLeon: I would like to know how in view of the nature of the disease and the pathological changes that take place at different stages how it is possible for any one to claim to have a specific for pneumonia. It is perfectly absurd to say that when the cells have proliferated and new tissue has been formed and become a solid mass, and the circulatory system is shut off from the whole of the affected area, I say it is absurd for any one to say that he has a specific that will bring about

a resolution of this condition and cause the parts to become normal. In order to reach such an end we must have a breaking down of abnormal structures. We must have a change in the hepatization until the normal condition is again reached. Now there is no remedy known that can do this. Our duty is to support and nourish our patient until nature can take care of this condition by restoring it to the influences of the circulatory system. That is my idea in regard to specifics. In the early stages of the disease, that is in the period of engorgement, an immense dose of digitalis might do good by preventing the pathological changes that we know will probably occur, but when we have a properly developed case of pneumonia, and when the changes described have taken place, I can see no reason to expect any specific to be of service in the way of bringing about a change to a normal condition.

DR. F. B. SHIELDS, Victoria: Dr. Crouse and I have been using a remedy which we do not claim to be specific, but which in certain conditions of the disease has had the effect of lessening the severity of the attack and in all probability has reduced the number of days the patient was sick. In addition to carbonate of ammonia we give vitalized eucalyptol, two drachms every twenty minutes. In eighteen cases we found that this treatment shortened the duration of the disease and decreased the cyanosis, cough, fever and expectoration.

DR. RED, in replying on the discussion, said: I do not want to interfere with any man's hobby, but opinions expressed here are apt to be regarded out of doors, not as the individual views of particular individuals, but as the views of the Medical Association of the State of Texas. Therefore I feel bound to protest against its being supposed that the views we have heard advanced as to the merits of the creosote treatment of pneumonia are in any way endorsed by this body. For one thing, before putting much faith in these reports that have been made to Dr. Van Zandt, I would like to know something more about the gentlemen who made them. I would like, also, to point out that the doctor has proceeded in the wrong way in the conduct of his investigations. There are, as we all know, many varieties of pneumonia. They are not all due to the same cause, though, as I said in my paper, they are ordinarily caused by the pneumococcus. In order to demonstrate that he has a specific, Dr. Van Zandt must show that he can give his remedy by the mouth in sufficient strength to kill the pneumococcus or destroy its effect. That he has not done. It is necessary that he should do this, and also that he should do the same in regard to other kinds of bacteria. This I repeat he has not done. He has simply got a number of reports from men scattered all over the country. I do not question the honesty of these men. I simply say that their reports do not give us sufficient data on which to base scientific conclusions. A friend of mine in Fort Worth used to say he could cure pneumonia with

a teaspoonful of digitalis, but he did not say what kind of pneumonia or at what stage. As has been brought out in this discussion, there is a period when no specific treatment can be expected to be of avail in the treatment of this disease. Similarly in regard to the specific about which we have been hearing so much for the cure of typhoid fever. It all depends on the stage of the disease, for after typhoid has advanced a certain extent the only antiseptic that could be expected to cope with it would be one that would reach every part of the body. All we can do in the treatment of pneumonia is to follow the common sense method indicated by Dr. Morris in his excellent paper. That is the only specific we have at present. I hope some day we will find one that will be still better.

DR. MORRIS, in closing, said: I have investigated this subject very carefully, and after the discussion that has taken place I may say that I have read all about creosote, but could not find sufficient data on which to found any conclusions. The gentlemen reporting the cases do not show that creosote aborted the disease or mitigated its severity. At the same time I believe creosote deserves to have a fair trial. Accurate and complete histories should be kept of each case, and laid before the profession, so that it should have an opportunity of forming its own opinion on the matter. Dr. Van Zandt speaks as if he would be much disappointed if he did not get rid of a case of pneumonia in the third or fourth day. With all respect to the doctor, I feel inclined to take with a large dose of salt any paper that comes to us with statements of that kind.

RHEUMATISM.

J. H. McCRACKEN, M. D.,
MINERAL WELLS, TEXAS.

I have selected this subject, "Rheumatism," which is old and, to many of you, may not seem interesting, but when we take into conideration the great number of cases that occur annually, the untold suffering these unfortunates endure, and irreparable damages that may follow, it behooves us to investigate the cause and, if possible, select a treatment which will relieve these patients.

The predisposing causes are wet, cold, exposure, fatigue and a depression of the vital forces, and, perhaps to a certain extent, heredity. The exciting cause is still unknown; however, the latest researches point to a definite micro-organism as the cause, which perhaps exists in the blood. As to the mode of entrance, it is not definitely known. Some have claimed it enters through the tonsils, and that there is a close analogy between tonsilitis and rheumatism. With the advantage of modern methods for investigating causes, I hope ere long the question will be solved. We believe there is a kindred relation between rheumatism, rheumatoid arthritis, gout and sciatica, and that the difference in the types is due to the virulence of the micro-organism, or to the resisting powers of the tissues. In acute rheumatism, the micro-organisms are most virulent. The toxins generated by this micro-organism being responsible for the initial chill and fever. It selects for its focus of infection serous and synovial membranes, fibrous structures about the joints, sheaths of nerves, and muscles, giving rise to acute arthritis, sciatica, muscular type of rheumatism, and endo and pericarditis. On account of the effect of this micro-organism causing a low state of the vitality, we get imperfect oxidization of the nitrogenous products with an excessive formation of uric and lactic acid, which, if not neutralized and eliminated, aids in producing chronic rheumatism, rheumatoid arthritis and gout. The acute attack sometimes

emerges into the chronic type, which is due to a partial success in treatment, or to a lessened power of the reactive forces of nature. In other cases of rheumatism it may be chronic from the start, which may be explained on the hypothesis, that the system is so strongly fortified that the micro-organism is held in check to the extent that we do not get the acute type, but the chronic form from the start; or it may be due to the attenuated form of the bacteria.

Rheumatism in its course is very similar to malaria, if we give just sufficient quinine to check the acute process, and stop, we are almost certain to get a reinfection, and a return of the acute symptoms. This process, repeated a few times, and the acute type assumes the chronic form, or, as in rheumatism, it may develop as a primary condition from the start by slow infection. This condition existing in rheumatism, the bacteria with its toxins are not sufficiently active to give ferver, etc., but has just force enough to produce pain, soreness, and a low grade inflammation about the focus of infection, resulting in a thickening of the fibrous structures, with a deposit in and around the joints. This, in older persons and those of lessened vitality, may go on until we get destruction of the articular cartilages, ossification, and finally complete ankylosis, giving rise to a condition known as rheumatoid arthritis. The reason why the heart is so often involved in the acute type is due to the toxins being turned loose in the blood, and increasing the heart's action, causing a forcible closure of the valves, which injure each other in closing, giving rise to a favorite site for infection.

There have been divers and sundry remedies employed in the treatment of rheumatism, both acute and chronic, but there is no remedy that compares favorably with the salicylates. This, in my judgment, is almost a specific, and the reason why so many fail to get good results is due to the fact that they give too small a dose, do not repeat often enough, and discontinue too soon. Salicylate of soda, to be effective, must be given in twenty-grain doses, and repeated from two to four hours, as necessary to relieve pain and fever. This perhaps acts directly on the micro-organisms, destroying them. As proof of this theory, an anerobic bacillus was found, in 1892, by Sucotello and confirmed later, in 1897, by Thiroloix,

which is probably the same as Achalme's bacillus and is perhaps the true bacillus of rheumatism. The growth of this micro-organism was markedly retarded by the addition to the culture medium of salicylate of soda in quantities smaller than those necessary to check the growth of other bacteria. As further evidence, if we leave off the treatment before the patient has fully recovered, which requires from four to six weeks treatment, after acute symptoms have subsided, we may get a return of the acute condition, which we attribute to reinfection, just as we have return of malaria, when quinine is left off too soon. As a result of this infection, we have a defective metabolism, giving rise to excessive amount of uric and lactic acid, which are poisons, keeping up an irritation and aids in lessening the vital forces; hence it is necessary to neutralize and eliminate these from the system. This is best accomplished by alkaline diuretics, plenty of water and saline purges. Any good alkaline saline mineral water is beneficial. During the active stage of inflammation, to assist in preventing cardiac complications, I give aconite for the purpose of lowering arterial tension, and slowing the heart's action, which I believe to be of great advantage. In connection with this treatment, we enjoin absolute rest. If this treatment is properly carried out, I believe most of the cases will recover without complications, at least this has been my experience. In the chronic type, the salicylates have their place, so long as there is any evidence of infection, such as soreness, fever, etc., but after all the infection is destroyed, and there remains an exudate in and around the joints, with thickening of the fibrous structures, nerve sheaths, etc., then the iodides have their place in connection with the alkaline eliminative treatment, hot baths, massage and electricity.

DISCUSSION.

DR. W. H. MOORE, Runge: I agree with Dr. McCracken in most, indeed in all, he has said. I think the subject is a very important one for us to discuss at this meeting, and it has been brought before us in a well written paper and one that is well worthy of consideration. Salicylate of soda is certainly one of the greatest remedies we have for rheumatism. Given in large doses it will at all events relieve the pain, and in some cases will

cure the disease. Quinine and the other medicines mentioned by the doctor are also useful, and his whole line of treatment is worthy of commendation.

DR. TAYLOR HUDSON: I would like to ask the doctor what effect the Mineral Wells water has on the patients. I send him patients occasionally, and he generally sends them home well. Now, what I am curious to know, is it the water or his treatment that brings about this result?

DR. BLAILOCK: I do not know that I have much to say on rheumatism. I never was much of an authority on the subject. Still I have seen a few cases during my professional life, and, therefore, naturally I have my ideas of treatment. I must say that on the whole I rather enjoyed the paper, though, in regard to treatment, it appeared to me there was some indefiniteness. The doctor extols the virtues of salicylate of soda, and insists that it be given in twenty grain doses every three or four hours and the treatment kept up for six weeks. It has never been my experience to have patients stand such heroic treatment for such a length of time. In addition he recommends aconite, which is a cardiac depressant. The effect of both drugs, therefore, will be to depress the heart. They must have more robust people at Mineral Wells than elsewhere to stand this. I fear my people could not stand it. I agree with the doctor that the salicylates stand at the head of our list of drugs for the treatment of rheumatism, but I do not think it wise to use them too long. It is apt to produce cachexia. It may be, of course, that the Mineral Wells water keeps the patients stimulated, and renders them immune to the action of these depressants. Generally speaking, the paper struck me as very good for the suggestions it contained in regard to general treatment. If there is one thing that causes the average doctor more trouble than another, it is the treatment of acute articular rheumatism. It is so very persistent, and it has such a continual tendency to return. Besides, the first attack may have injured the heart, and this increases the danger of your cardiac depressants. Another thing to be borne in mind is that diet is as important as medicine. Unless we put them on a proper diet our patients will not improve no matter what medicine we give them. I have found a milk diet generally satisfactory. If we permit them to eat meat, and they have any tendency to over-indulgence, we may expect a continuance of the trouble.

DR. C. E. CANTRELL, Greenville: I would like to hear a little more about how the doctor classifies different forms of rheumatism.

DR. MCCRACKEN, replying, said: Relative to the water of Mineral Wells, it is alkaline and saline and undoubtedly must have some effect. In all cases of rheumatism there is an excessive amount of uric and other acid present in the system. I think they are the cause of the multiplica-

tion of the micro-organisms which renders the system liable to the disease by lowering the vitality. Therefore, elimination is called for, and for this purpose plenty of pure water is always useful. Almost any kind of water is good, but when you use an alkaline water you have this additional advantage, that you neutralize the acids which are the cause of the trouble. Sweat baths are useful for the same purpose. I believe the salicylate of soda destroys the micro-organism, and that the water eliminates undesirable material from the body. As to aconite, it is only indicated in acute stages, when we have fever. It has the effect of slowing the heart, which, under the circumstances, I say is an advantage. I do not believe that we often get cardiac complications if these cases are treated heroically from the beginning with the salicylates. As to the question of continued use, I have given them three times a day for an indefinite period, and my experience is that all stomachs will stand that treatment. Of course, there are some people who cannot take the salicylates, just as there are some people who cannot take quinine. All these things have to be taken into consideration.

ORIGIN AND DEVELOPMENT OF HUMAN SENSATION AND THOUGHT FROM AN EMBRYOLOGICAL STANDPOINT.

J. M. FORT, M. D.,
PARIS, TEXAS.

This paper is not presented as original, but as gleanings from the most distinguished scientists of the day; the results of the labors of men of talent and indomitable energy who have devoted their lives to the study and elucidation of the occult laws of nature. The progress that has been made and the practical application of those results in the various arts and sciences are wonderful. It is true we are living in an "age of commerce"; an age in which our international communication and trade have attained a magnitude beyond the conception of any previous age. It is true we have, in a measure, obliterated time and space by our telegraphs and telephones, and, by the application of steam and electricity, we have revolutionized all motor power, and we are working wonders along this line, making rapid and lasting improvements in the various pursuits of life. And if, as medical men, we have brought infinite relief to human suffering and pain by our knowledge of the therapeutic effect of certain remedial agents, and have saved life by our antiseptics and serous therapeutics, we owe it all to applied chemistry and a more thorough knowledge of the laws of individual life.

But it is so well known how much the past half century has surpassed any, if not all, previous centuries, through these and other scientific discoveries, that we need not rehearse them here. If there be any one injunction or maxim that applies with peculiar force to the physician, it is the one given us by Socrates, "Know thyself," in other words, "the proper study of the physician is man." And it occurs to the writer, as has been said by some eminent author, that the most important moment in the life of every man is the moment in which he begins his individual existence. And this is

the moment when the sexual cells of both parents meet and coalesce for the formation of a single simple cell. In the formation of this cell, during the process of copulation, or immediately afterward, the existence of the personality begins; the independent existence of the creature commences just at that precise moment of time.

This autogenetic fact is supremely important from the fact that the most far-reaching conclusions and deductions may be drawn from it. For instance, in the first place, we have a clear and correct perception that man, like all other complex animals, inherits all his personal characteristics, both of body and mind, from his parents. The general and, in many instances, the special characteristics, both of body and mind, being a special legacy bequeathed by the parents. And further, we very rationally conclude that this new being, this new personality, coming into existence as we have described, can be nothing more or less than a physical creature and can lay no claim to an unending existence.

It was only during the nineteenth century that our knowledge of human life attained the dignity of a genuine, independent science. It is true physiology had been regarded, at a much earlier date, as a branch of scientific medicine and had been intimately associated with a knowledge of anatomy. But psychology never, until recent years, occupied the position to which it was entitled as a legitimate branch of physiology.

Not one medical scientist appeared, from the third to the sixteenth century, who dared to make independent research into man's vital activity and transcend the limits of the old theory laid down by Galen. It was not until the sixteenth century that such physicians and anatomists as Paracelsus, Servitus, Vesalius and others dared to make experiments in this direction.

For more than a century afterwards, yes, I may say, from the middle of the eighteenth century until the middle of the nineteenth, medicine, especially physiology, was dominated by the old idea that a certain number of the vital processes may be traced to physical and chemical causes, but that the others are the outcome of a special vital force which is independent of physical agencies. In other words, there arose a complete physiological dualism.

"There was an essential distinction drawn between organic and inorganic nature; between mechanical and vital processes; between natural force and vital force; between bodily and mental activity."

In addition to this, we must add, as another hindrance to research along this line, the immense opposition which was everywhere offered to biological evolution on account of the close connection between questions of organic creation, and superhuman myths, and theological dogmas. Then, as now, if a man dared to express an independent opinion that came in conflict with some other man's cherished dogma, he was branded as an infidel or atheist and wound up his earthly career by being prayerfully roasted at a stake.

The striking resemblance of man's psychic activity to that of the higher animals is a fact so well known that no educated man will attempt to controvert it. A great many of the uncivilized races still draw no material distinction between the two sets of mental processes, as the well-known animal fables, the dogma of the transmigration of souls and old legends clearly demonstrate.

When that able botanist, Schleiden, in 1838, determined by experimentation that the cell was the common elementary organ of all plants, and then proved that all the different tissues of the plant were merely combinations of cells, the extraordinary possibilities of this important discovery became apparent to all investigating, thinking minds.

But, notwithstanding this discovery was made as far back as 1838, it was only very recently that cellular physiology and pathology (which is based upon it) were taught by our leading medical teachers. We are told that very many of our older physicians believed that human diseases were natural phenomena like other manifestations of life and should be studied scientifically like other vital functions. In the main, however, it was almost universally believed and taught by physicians and others, down to the middle of the nineteenth century, that diseases and all other ills to which humanity is heir, were supernaturally inflicted upon mankind. "The truth is, however, in sickness, no less than in health, man is

subject to the same 'eternal iron laws' of physics and chemistry as all the rest of the organic world."

The prevailing conception of psychic activity which I desire to contest in this paper, considers the mind or consciousness and the physical organism to be two distinct entities, if, indeed, we may call what they regard as immaterial, an entity. If mind, in the sum total of its psychic activities, and the body be two separate entities, they most assuredly can exist independently of each other. In fact, there can be no intrinsic necessity for their union.

The organized body, as all know, is a mortal, material nature, chemically composed of living protoplasm and its compounds. Mind activity, on the other hand, is said by the dualists to be an immaterial, immortal, spiritual agent whose mysterious activity is wholly incomprehensible even to its advocates, to say nothing of others.

"This conception of mental activity is, in a certain sense, spiritualistic, and its contrary, in a certain sense, materialistic." Then, again, this dualistic conception is supernatural and transcendental, since it affirms the existence of forces which can exist and operate without a material basis. And further, this theory leads to the assumption that, outside of and beyond nature, there is a spiritual, immaterial world of which we have no knowledge or experience and of which we can learn nothing by natural means.

Mr. President, I heartily agree with that class of scientific investigators who believe this hypothetical spirit world, which is supposed to be entirely independent of this our material universe and on the assumption of which the whole artificial structure of this dualistic system is founded, is purely a product of the poetic imagination of man.

I agree with the theory, advanced several years since by that brightest and deepest of thinkers, Ernest Haeckel, when he says: "The phenomena of the lowly psychic life of the unicellular animals and plants, their irritability, their reflex movements, their sensitiveness and instinct of self-preservation, are directly determined by physiological action of the protoplasm of their cells,—

that is, by physical and chemical changes which are partly due to heredity and partly to adaptation."

Now, I would ask the advocate of the dualistic theory to explain how it is, that all living organisms, without exception, are sensitive, if they are not influenced by the condition of their environment and react thereon by certain modifications of their own protoplasmic structure? Can it be explained in any other way than by saying that light and heat, gravity and electricity, mechanical processes and chemical action in the environment, act as stimuli on the sensitive protoplasm or, shall I say, psychoplasm, and effect changes in its molecular composition?

No, Mr. President, we must say just the same of the higher psychic activity of the higher animals and man, including the formation of ideas and concepts of the marvelous phenomena of reason and consciousness, for these have been philogentically evolved from the former, and it is merely a higher degree of integration or centralization of association or combination of functions which were in the unicellular animals isolated, that brings about such results as reason and consciousness.

"For the profitable construction of comparative psychology," says an eminent scientist, "it is extremely important not to confine the critical comparison to man and the brute in general, but to put side by side the almost innumerable gradations of their mental activity." By so doing, we find an unbroken chain of psychic development which runs from the lowest unicellular forms of life up to the mammals and to man at their head.

All are ready to admit that the very beginning of human life and human personality has its origin in the combined protoplasmic cell —that is, the cell produced by the union or coalescing of the spermatic cell of the male with the egg cell of the female. The union of these two cells and their nuclei form what is called the stem cell or cytula. These two cells are attracted to each other by a mysterious force which scientists call a chemical sense activity. This cytula, as all physicians know by segmentation, form various groups of cells, each group with sense-like precision, by segmentation and

aggregation, formulates the various organs and tissues which go to make up the organism of the new being.

These groups of cells are all protoplasmic cells, and endowed with sense activity which enables them to select from the circulating medium of the mother, just such material as constitutes the particular organ or tissue of which they are the architects and builders. Not only so, but so long as the organism lasts, or the being lives, each group of these cells puts forth its combined energy to keep its special organ or tissue in a condition to perform its normal function. If a bone be broken, the group of bone cells repairs it; if an organ become diseased, its special protoplasmic cells concentrate their vital energies to repair the injury; if one or more of these cells become disabled or die, it is removed by the remainder and by proliferation new ones take its place.

Now, what do we learn from these demonstrated facts, facts that come under our observation every moment of our lives? We learn, first, that every human being and the higher animals are a simple cell at the beginning of life; and, second, we learn that this cell is formed by the blending or coalescing of two separate cells of diverse origin—the cell of the male and female; third, we learn that each of these sexual cells has its own cell vitality—that is, each is distinguished by its own peculiar form of sensation and movement; fourth, we learn that not only does the protoplasm of the sex cells and their nuclei coalesce at the moment of conception or impregnation, but also that their psychic elements or potential energies, which are latent in both and inseparable from the matter of the protoplasm, unite for the formation of a doubly increased potential energy of the combined simple cell.

Now, if this be true, how can any other entity enter the human organism since the entire structure is the outgrowth of cell proliferation and cell aggregation?

From what I have just said it will be plain that each personality owes his body and mental peculiarities and qualities to both parents, for the brain substance and, I may say, the entire nervous system are as much the mechanism of cell aggregation as any other organ or tissue of the human body, and it is also a purer proto-

plasm. In fact, the inheritance of the psychic qualities of the two parents is as demonstrable as is their body inheritance, for it is well known that every child inherits from both parents his peculiarities of character, his temperament, talent, acuteness of sense, strength of will, etc. Now I would ask if the inheritance of psychical phenomena is not as true and invariable as the body structure? "The blending of the two parental cells and their nuclei may be called the physiological moment of heredity, by it the personal features of both body and mind are transmitted to the new being." These autogenetic facts are beyond the explanation of the dualistic and mystic psychology which is still adhered to by some intelligent physicians and a few scientists.

A new creature comes into existence at the moment of conception, and yet it is barred by inheritance from being an independent entity either in respect to its body or mental qualifications. It can only cultivate the brain given it by inheritance. You can add no material potentiality to it and, whatever be its cultivation, there are restrictions which cannot be overcome. You are limited by race and family peculiarities as well as the powers and capacities given the inherited brain itself.

Modern physiology teaches us that the cerebrum is the organ of consciousness and mental activity in man and the higher animals, and this important fact is illustrated and, I may say, demonstrated by the pathological study of diseases.

If the brain substance be only the home or place of habitat of the mind, when parts of the cortex of the brain are destroyed why should its respective functions be affected? And when certain parts of the area become diseased, why does that portion of thought and consciousness disappear? In fact, it appears to me that there is proof enough in the most familiar phenomena of consciousness to prove its complete dependence on chemical or motor changes of brain substance.

If, on the other hand, consciousness be immaterial, as some contend, why is it that certain articles, such as tea and coffee, stimulate our powers of thought, and others, such as chloroform, ether,

etc., deaden it? And why do others, such as camphor, musk, etc., reanimate the fainting consciousness?

If consciousness be an immaterial, spiritual, ethereal entity, or non-entity, incomparable to any material substance known to us, why should it be affected by the narcotic poisons, such as morphia, cocaine, absinthe, etc.? And please tell me how it happens that the person who becomes addicted to the persistent use of one of these poisons soon loses his acquired attributes of mind, and retrogrades and loses all refinement, culture, honor and often virtue itself. Is it not a fact that these articles should have no immediate or direct effect upon an endowment of an entity or rather a spiritual vapor which sustains no relation to the brain substance other than by association?

Now I desire to ask this intelligent body of physicians a simple physiological question which, in the discussion of this paper, I would be glad to have them answer. The question is: What is the soul of man if it is not the collection or sum total of man's cerebral functions? If it is not this, please tell me what it is, and what part of the organism it inhabits.

Mr. President, we know that man and all animals derive their sense organs—that is, seeing, hearing, smelling, tasting and feeling, from the sensitive cells of the epidermis. This significant fact can be directly proven by observation of the embryotic development.

Again, it is very clear to my mind that all truth, all knowledge, all intellectual endowments, depend on two different, but intimately connected, groups of human physiological functions. First, on sense impressions of the object by means of the sense action or the sense organ, and, second, by the action of the neurine cells combining their impressions by association into presentations in the brain. "The instruments of sensation are the sense organs, and the instruments which form and link together the presentations are the organs of thought."

We have found, Mr. President, vital energy to be an element of the protoplasmic cell. We have found that this vital energy is gradually increased in a long chain of animals, in proportion to its aggregation.

Scientists give us the following order of progression: "In the lowest stage of organization the whole protoplasm, or rather psychoplasm, as such, is sensitive and reacts on the slightest external stimuli. This is the case with many plants and some of the most rudimentary animals.

"At the second stage of progression very simple and indiscriminating sense organs begin to appear on the surface of the organism in pigment spots, the forerunners of the nerves of touch and eyes. These are also found in many of the lower animals.

"In the third stage we find specific organs of sense, each with a peculiar adaptation. The 'specific energy' of these sense organs is not an original inherent power of theirs; on the other hand, it has been acquired by functional adaptation and heredity.

"The fourth or next stage is characterized by the centralization or integration of the nervous system and consequently of sensation by association of the previously isolated or localized sensations. This class of animals are still unconscious.

"Finally, at the fifth stage the highest psychic function, 'conscious perception,' is developed by the picturing or mirroring of the sensations in the central part of the nervous system, as we find it in man."

Now, Mr. President, let me say, in conclusion, we demonstrate cell vitality by the unicellular protist, such as the spermatizoa of the male and the egg cell of the female; by the mimosa and fly-trap and other plants. Also by the sponge, the infusoria, rhizopods, etc., among the animals with the amaeba, heliozoon and others. The stimuli from without produce on every spot of the unprotected surface of the unicellular organism external movements which take the form of changes of shape and often changes of place.

Then it is found, when a rise of animality or a progress is made in sensation and mobility, that there is an increase in the number of protoplasmic cells in the organism of the animal. And as this protoplasmic material is increased in that proportion we have an increase in psychic manifestations. This psychic progress extends from the lowest to the highest animal development, including man.

DISCUSSION.

DR. SHROPSHIRE: The paper to which we have listened appeals to me as a most interesting one, and I regret that I did not hear the whole of it. I concur in very much that the doctor has said, but until he is able to explain how matter, or the protoplasmic or brain cells, can take on action without stimulation from without, I cannot accept his theory as to the origin of thought, and must maintain that voluntary action is the result of stimulation from within, coming from the vital energy or soul. That is not dependent upon outward force. The brain cells and nerves seem to be a collection of electric wires and batteries which may respond to a stroke of lightning from without, or external stimulation, but which may also be set in motion by the electrician within the soul.

DR. W. H. MOORE, Runge: The doctor has asked a very important question, and one that it is equally difficult to answer. He asks, "What and where is the soul of man?" This is a question that has engaged the study and thought of psychologists in all ages. It has been conceded that there is an intimate relation between mind and matter. This relation continues during the life of the body. After death it is only a matter of conjecture where the soul of man goes. This question must be left to the judgment of each individual. We consider that the soul is immortal, and that the mind is a part of the body that never rests. As evidence of this we have all had dreams during sound sleep. I consider the question a very important one for us to discuss, and would be glad to hear some of the gentlemen present express their views on it.

A COMPARATIVE STUDY OF THE VALUE OF METHYLENE BLUE AND QUININE IN THE TREATMENT OF MALARIAL FEVER.

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(From studies in the John Sealy Hospital, University of Texas, Medical Department, Galveston.)

Our object in taking up the study of methylene blue was to see if we could by using it at the same time as quinine, and on the same type of cases, come to any definite conclusions as to their relative value in the treatment of intermittent fever. As the cases were admitted to the ward one was assigned to methylene blue and the next was given quinine. No attention was paid to the type of case in this assignment, but a blood examination was made so as to keep a record of the case. The conditions were kept the same as nearly as possible, in all the cases under treatment.

Our diagnoses are based entirely upon the microscopical findings, and the treatment was not begun until the parasites were found in the blood. After this we followed the cases as nearly as possible with daily blood examinations. They were kept on the form of treatment adopted until the parasites disappeared entirely, or until there was evidence that the drug had failed. Twenty cases were studied in this way, giving us ten cases to each drug.

The dosage in each series of cases was kept as uniform as possible. Full doses of each drug were used, fifteen to forty grains of quinine was given each day, and twenty grains of methylene blue divided into four doses was given to those assigned to the treatment by methylene blue.

The Drug and Its Administration.—A distinction must be made between methyl blue, the dye, and methylene blue, the medicinal

agent. Pure medicinal methylene blue must be used. By getting the drug from a reliable manufacturer you are practically assured that an uncontaminated article is given.

From Foster's Practical Therapeutics, Volume I, page 629, we have a simple test: Make a solution of methylene blue. The meniscus is said to be of a greenish instead of a blue color, while with methyl blue there is a blue color.

By adding sodium hydroxide you get a purplish red color with methyl blue, while methylene blue turns a deep violet.

It is important to be able to recognize the difference, for toxic effects are reported in the use of methyl blue.

We adopted as the dose of methylene blue twenty grains per day divided into four capsules of five grains each.

Powdered nutmeg should be administered along with methylene blue to lessen the tendency to strangury. We gave two grains of powdered nutmeg with each five grains of methylene blue. Thayer (Johns Hopkins Hospital Reports, 1892) gives one and a half grains of methylene blue with an equal amount of powdered nutmeg, five times per day. This dosage we think is too small.

An objection has been made in some quarters that patients did not like to take the blue, but we found not the slightest difficulty along this line.

Some authorities begin the administration five or six hours in advance of the expected paroxysm, but in our cases the drug was given after meals three times a day. It was given in ordinary gelatine capsules and followed by a large draught of water. Guttman and Erlich (*Wiener Med. Woch.*, October 24, 1892) gave seven and one-half grains six hours in advance of the expected attack, and following the attack, one and one-half grains was given five times daily.

Some authorities recommend its use hypodermically, but we have not considered it advisable to so use it.

Action of Methylene Blue.—The drug is supposed to be a parasiticide and antiperiodic. Its power to stain the malarial parasite is said to have led to its use as an antiperiodic. When used directly upon the parasite in a weak solution it at first checks their move-

ments, later killing them and then staining them. We have not succeeded in staining the living parasite either by administering the drug by the mouth or by mixing the blue directly with the blood in a normal saline solution. In the former the parasites showed some activity, but in the latter instance where mixed directly with the blood the parasites were observed to lose their movement as the stain showed itself.

The secretions in a very short time became tinged with blue. We noted the bluish tint of the conjunctivæ, probably due to the staining of the tears. We doubt that any living and healthy tissue or protoplasm will take the stain in sufficient quantity to manifest itself. We did, however, in a number of instances note what we took to be methylene blue granules in the leucocytes.

The drug is eliminated by all of the secretions. Lemanski and Mann (*Le Bulletin Med.*, January 29, 1893) detected it in the saliva forty minutes after administering it by the mouth, and its rapid elimination by the kidneys has led to its use as a diuretic. Our observations did not cover this phase of the subject.

We have several times noted the analgesic qualities of the drug.

Analysis of Cases.—Of the ten cases put on methylene blue, eight of these were estivo-autumnal, and two of them were double tertian.

The average duration of sickness was twenty-nine days.

CASE 1 was of twenty-eight days duration. He was put on three grains of methylene blue every four hours. This treatment was begun July 11th and on the 12th the dose was increased to five grains every four hours.

He had a distinct chill on the 13th, but after this paroxysm the temperature came to normal. The parasites had entirely disappeared from the blood by the 29th of July. On August 1st there was noted a rise in the temperature, and on the following day there was the same occurrence. The blood was examined, but no parasites were found. As the patient was complaining of a severe headache all the time it was decided to give him ten grains of quinine every four hours; this was done with complete relief of the headache and the fever.

CASE 2 was put on five grains of methylene blue every four hours,

July 12th. He had daily chills until on the 16th, and 17th he missed, but on the 18th there was a slight rise of the temperature above the normal.

Parasites were demonstrated in the blood in considerable numbers each day. On the 19th he had another distinct chill, and there was noted an increase in the number of parasites present in the blood. He was now put on ten grains of quinine sulphate four times a day for two days, and then he was given three grains three times daily until he left the hospital, July 27th. The blood was examined on this date, but no parasites could be found.

CASE 3 was of the estivo-autumnal type. This case, on August 4th, through mistake, was put on two teaspoonful doses of elixir of iron, quinine, and strychnia three times a day. His temperature came to normal on the following day. The parasites were seen to be quite abundant in the peripheral blood, so on the 7th he was placed upon methylene blue, twenty grains per day in four doses. The parasites were observed to rapidly disappear.

CASE 4. This case was admitted August 17th, and was put on twenty grains of methylene blue per day in four doses, and continued until the 28th. A blood examination made on the 30th showed no parasites present, but on account of the development of a bubo he was transferred to the surgical ward, where it was opened and drained. On September 3rd patient had a chill. He was put on tr. ferric chloride and Fowler's solution and methylene blue. The parasites had entirely disappeared by the 11th of September. He was given elixir of iron, quinine, and strychnia as a tonic, and dismissed.

CASE 5 was one having present two groups of tertian parasites in the blood. He was admitted on the 21st of August, just after having had a chill, the temperature being 103 degrees F., and with the sweating stage following soon afterward. His blood was examined on the 22nd and a few parasites were found. Several blood examinations were afterwards made, but no parasites could be again demonstrated. Notwithstanding no parasites were again found, he was put on methylene blue, which was continued until the 29th. The temperature never rose above normal after midnight of the 21st. We feel that this was a case of spontaneous cure, as the

patient had a normal temperature and no parasites present before the methylene blue was given.

CASE 6 was one of estivo-autumnal fever, the blood containing many crescents and ovoid forms. After four days' treatment no parasites could be demonstrated. This case had no fever when admitted to the hospital, nor did the temperature rise above the normal during his stay in the ward.

CASE 7 was one of malaria and amoebic dysentery. The parasites disappeared from the blood after two days' administration of the methylene blue. He had been admitted September 13th for dysentery. Chaparro armagosa was given for the dysentery, with complete relief. On the 16th, he had a distinct chill, but the parasites had been found on the 14th, and the treatment for malarial fever was begun. Although the parasites had disappeared from the peripheral blood, the temperature remained up. He insisted upon going out, so he was discharged on the 25th. He may have been suffering from an abscess of the liver, thus giving rise to the abnormal temperature. No symptoms other than the constant temperature and the fact that amoebæ had been found in the stool pointed to this condition.

CASES 8 and 9 were cured in three days and six days, respectively.

CASE 10 was one of unusual interest, as we failed completely to clear the blood of parasites after giving methylene blue, twenty grains per day, from October 8th to October 21st. He had, however, been free of fever four days of this time, from the 12th to the 16th, inclusive. During these days of intermission it was noticed that the parasites were increasing in number. On the 17th he had a regular malarial rigor. The temperature gradually came down until on the 21st it reached the normal, but again on the 22nd the parasites had increased in numbers sufficiently to cause another chill. He was now put on five grains of quinine sulphate every four hours, and was discharged on the 28th, cured.

Summary.—We may say that we cured sixty per cent. of the cases with methylene blue. One case, we think, was a spontaneous cure and in three others the blue failed entirely. Taking this sixty per cent. of cures they required on an average six and one-half days treatment to effect a cure.

The cases treated with quinine were cured in an average of 5.8 days and there were a hundred per cent. of cures. In addition to this we cured the cases upon which we had failed with methylene blue.

With methylene blue there was more or less burning or pain on micturition, and in Cases 3, 7, and 10 there was nausea and vomiting. There was headache which seemed to stop when the blue was discontinued in Cases 1, 2, 3, 5, and 8. Case 9 we may say is the only one treated on methylene blue without any complications.

We were compelled in some of our cases to stop the methylene blue for a few days so as to relieve the burning on micturition.

We often observed that the leucocytes contained granules of methylene blue. In no case were we able to find a parasite stained. We noticed frequently after the first two or three doses of the blue that the parasites were less active and that the leucocytes were much more phagocytic in their action. We many times saw them actively engaged picking up the parasites. These effects upon the parasites and the leucocytes have been also noted many times in patients taking quinine.

Conclusions.—Our conclusions do not differ materially from those of Thayer and others who have tried methylene blue.

1. Methylene blue will destroy malarial parasites in many cases, but is less certain than quinine.

2. Methylene blue is probably most valuable in chronic cases. but has no advantage over quinine.

3. The effects of methylene blue are ordinarily more unpleasant than quinine.

4. It is useful in cases that can't take quinine on account of some idiosyncrasy to it. Its use in cases of pregnancy is undetermined.

5. It is probably valuable in treating hematuric and hemaglobinuric fevers on account of its diuretic action; this has to be determined as yet. We have had no chance to test its use in such cases.

6. We believe that quinine is quicker and much more certain and would rely upon it rather than upon methlyene blue.

See Charts 1 and 2 for further comparison of results of treatment.

CHART I. METHYLENE BLUE CASES.

Case.	Age.	Type.	Duration.	Complications.	Result.	Time of disappearance of parasites.	Remarks.
1. F. H.	36	Estivo Autumnal.	28 days.	Severe headache.	Doubtful.	28 days.	Temperature normal in two days. Hyaline ring bodies and crescents.
2. E. A.	22	Double Tertian.	7 days.	Severe headache.	Failed. Cured by Quin. Sulph.	Parasites present after taking blue for 7 days.	Quinine given on 18th and 19th. No parasites on 27th.
3. P. R.	22	Estivo Autumnal.	8 days.	Headache, Nausea, Vomiting, Burning on Urination.	Cured.	11 days.	Temperature normal before methylene blue was given.
4. M. J.	29	Estivo Autumnal.	13 days.	Pain on Micturition. Bubo.	Relapse. Cured.	No parasites on Aug. 30, after taking blue 13 days.	Chill September 3. Parasites present September 30. Was sent to surgical ward.
5. J. C.	35	Double Tertian.	6 days.	Slight headache, severe burning on Micturition.	Spontaneous cure.	No parasites seen after 24 hours.	
6. P. C.	27	Estivo Autumnal.	90 days.	Pain on Micturition.	Cured.	4 days.	Crescents seen in blood.
7. W.J.M.	27	Estivo Autumnal.	13 days.	Nausea and Vomiting.	Cured.	2 days.	Ring forms.
8. D. D. C.	49	Estivo Autumnal.	16 days.	Headache, heavy feeling at base of bladder.	Cured.	3 days.	Ring forms.
9. R. J. K.	45	Estivo Autumnal.	105 days.	No headache.	Cured.	6 days.	Many crescents and ring forms.
10. J. J.		Estivo Autumnal.	6 days.	Vomiting. Pain on Micturition.	Failed with M. blue.	Cured by Quinine in 7 days.	Temperature normal on the 12th. M. blue continued, but he had paroxysm anyway.

CHART II—QUININE CASES.

Case.	Age.	Type.	Duration.	Complications.	Result.	Time for disappearance of parasites.	Remarks.
1. C. D.	34	Estivo Autumnal.	60 days.	Post Malarial Nephritis.	Cured.	5 days.	Ring forms.
2. J. H.	29	Estivo Autumnal.	42 days.	None.	Cured.	3 days.	Ring forms.
3. P. L.	27	Estivo Autumnal.	22 days.	None.	Cured.	3 days.	Ring forms.
4. J. C.	45	Estivo Autumnal.	7 days.	Gastritis—nausea and vomiting.	Malaria cured.	9 days.	Crescents and ring forms.
5. C.H.R.	42	Estivo Autumnal.	4 days.	None.	Cured.	5 days.	Many bodies. Ring forms.
6. M. M.	30	Estivo Autumnal.	5 days.	None.	Cured.	3 days.	Many ring forms.
7. R. K.	22	Estivo Autumnal.	75 days.	None.	Cured.	5 days.	Intra-corpuscular ring forms, crescents and ovoids.
8. J. B.	38	Simple Tertian.	7 days.	None.	Cured.	6 days.	Intra-cellular bodies.
9. P. L.	41	Double Tertian.	28 days.	None.	Cured.	10 days.	Intra-corpuscular and free bodies.
10. H.D.L.	44	Tertian.	150 days.	None.	Cured.	4 days.	Intra-cellular bodies.

DISCUSSION.

DR. SHROPSHIRE: I am afraid it is proverbial in this Association that I cannot hear malaria mentioned without rising to discuss it. Nevertheless, I must ask permission to say a word or two, because I believe nothing could be of more value to the members of the Association than papers such as we have just heard. All of us come in contact with malarial subjects every day, and there is no more vital or important question than how to cure the disease. Dr. Moore has given us data for the comparison of two remedies—one tried and old and known to be good, and the other new but very much lauded by its champions. The facts he has laid before us are extremely valuable. I can corroborate what he has said in many respects, while there are other points on which I have arrived at different conclusions. He spoke of two forms of malaria, but there is a third form on which he did not touch, and that is the form in which methylene blue is said to be most useful. Personally, I have found it quite as efficient as quinine in most cases of malaria, though not so quick in its action; but in the case of pregnant women, where the effect of quinine is feared, methylene blue has a special use. My experience has led me to believe that the affinity of the drug for the malarial parasite constitutes its greatest value to us, and possibly quinine acts in the same way. I have had a few cases—one a tuberculous one—in which the quinine failed to eradicate the parasites from the blood. Temporarily the symptoms disappeared, but the moment the quinine was stopped the parasites returned. This may have been due to the toxines of tuberculosis. However, when I tried the methylene blue it proved more efficacious. I have been requested, while on the subject, to ask Dr. Moore whether he has ever used a combination of methylene blue and quinine?

DR. MOORE: I have never tried any combination of the two drugs. There are a number of other points on which I should like to have dwelt if time had permitted. I quite agree with the doctor as to the value of the methylene blue in the case of pregnant women.

ACHYLIA GASTRICA.

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AND
S. M. MORRIS, M. D.,
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While we are all familiar with the conception that a deficiency of gastric juice, both in quantity and quality, often exists, it comes rather as surprise to many of us to have our attention called to the fact that cases are by no means infrequent in which there exists an absolute absence of gastric secretion, and, furthermore, that these cases often enjoy fairly good health for long periods of time and exhibit few or no symptoms whatever referable to the stomach, and may finally consult the physician for troubles apparently due to other causes. We desire, therefore, to add our small contribution to the literature of this very interesting condition.

By the term achylia gastrica, which was first proposed by Einhorn, of New York, we refer to that condition of the stomach in which it fails to respond to the normal stimulus of the food by a secretion of gastric juice, whether this condition be due to organic disease of the stomach or to a disturbance of the nervous mechanism of secretion or as a complication of some other disease. We are aware of the fact that this is not a wholly scientific manner of discussing the subject, but our apology lies in the fact that we believe that at the present time it is impossible to differentiate between a primary and a secondary achylia in the majority of cases one meets with.

PATHOLOGY.

As these cases rarely die of the affection and come to the autopsy table, but little is definitely known concerning the pathology. It appears, however, that there may exist an atrophy of the glands of the stomach due to or associated with a growth of connective tissue

between the tubules, or the glands may undergo atrophy or destruction secondarily and in connection with the various cachexias, such as those resulting from Bright's disease, carcinoma, tuberculosis, pernicious anemia, etc. In cases of profound anemias associated with gastric atrophy, we do not think it can be definitely settled which is the primary trouble in most cases. It may happen sometimes that small pieces of the gastric mucosa are washed out during lavage, and microscopical examination may enable one to form some opinion of the nature of the anatomical changes which are going on at least in part in the mucosa. We believe, also, that the disease may be purely functional, but as very little is definitely known concerning the nervous mechanism of the gastric secretion it is impossible to even venture an opinion as to how this occurs.

ETIOLOGY.

About this we confess we know almost absolutely nothing.

SYMPTOMS.

It appears that this condition may exist for a variable length of time with no symptoms whatever, but usually some disturbance of the digestive functions exists; but it is rarely of such a character as to enable one to make a diagnosis of the condition therefrom. We shall, therefore, only discuss the symptomology briefly. Patients may complain after eating of a heaviness, distress or even of actual pain over the region of the stomach usually appearing immediately and lasting for an hour or so. There may be nausea, occasionally vomiting, and a little belching of gas. A very prominent feature in many cases is a tendency to frequent, sharp and sometimes obstinate attacks of diarrhea, particularly in those cases in which the motility of the stomach is impaired. Headaches and neuralgias may be present, and neurasthenic symptoms be prominent and varied in character.

DIAGNOSIS.

This can only be definitely established by giving to the patient a test meal and examining chemically the contents of the stomach.

A number of test meals have been proposed by different authors, of varying degrees of complexity and demanding more or less digestive work of the stomach; but in our experience the Ewald test meal of bread and water is wholly satisfactory in the great majority of cases of stomach trouble. This consists of two and a half ounces of stale wheat bread and 350 c. c. of water, and is taken upon a strictly empty stomach, best in the morning. Each mouthful of the bread should be thoroughly masticated before being swallowed and the water taken between mouthfuls. One hour exactly after the beginning of the meal the stomach tube is introduced and the patient instructed to strain, which usually results in expelling a portion of the contents of the stomach through the tube into a glass provided for its reception. This is marked No. 1 and set aside for examination. Two hundred c. c. of water are poured next into the stomach through a funnel attached, syphoned out, poured back and syphoned out again, with a view to thoroughly mixing the water with the remaining contents of the stomach. This is collected in a vessel, allowed to settle thoroughly, and the clear supernatent fluid afterwards examined for the amount of its total acidity. Contents No. 1 is measured, filtered and examined for the various elements of normal gastric secretion, such as free HCl, combined HCl and the acid salts, each of these factors being determined quantitatively, then examined for pepsin, the milk curdling ferment or so-called lab ferment, and if necessary also for their zymogens; and if necessary for the products of the digestion of these ferments, such as syntonin, peptones, maltose and the presence or absence of starch. Often also, it is necessary to look for the presence of abnormal substances resulting from fermentative changes in the stomach, such as acetic, butyric and lactic acids, and for bacteria, fungi, blood, etc. Since these methods are fully described in all works on this subject, it would be unprofitable to describe them here further than to say that the filtered gastric juice is titrated with a deci-normal solution of sodium hydrate with di-methyl-amido-azo-benzol as indicator for the free HCl, and in the presence of phenol-phthalein for the combined acid and the acid salts, the sum of the two titrations representing the total acidity. The nor-

mal gastric juice one hour after the test meal has an acidity of 15 to 20 for the free HCl—that is, requires from 15 to 20 c. c. of the deci-normal alkali to neutralize the free HCl in 100 c. c. of the gastric juice, and has a total acidity of 55 to 60. In achylia gastrica, however, we find an absence of HCl, either free or combined, and only a faint total acidity, varying between 3 and 10, an amount of acidity which the bread and water alone will often show with phenol-phthalein as indicator, showing that absolutely no HCl whatever is being secreted by the stomach. No traces of the pepsin or the milk curdling ferments can usually be found. Owing to the absence of the HCl, salivary digestion goes on unimpeded in the stomach and tests for starch are negative, while the tests for maltose are very pronounced. The quantity of gastric juice obtained by expression is also usually very small, 10 to 20 c. c., and is obtained with difficulty. Inspection of it shows that the bread has undergone practically no digestion or solution and appears to have been simply mechanically ground up with the water. The acidity of the diluted sample which had been set aside for examination is next determined with phenol-phthalein as indicator, and by comparison of this with the acidity of the expressed sample we can calculate the amount of fluid which was left in the stomach before the water was poured in. This added to the quantity expressed gives us the quantity of gastric juice in the stomach at the expiration of the hour. Normally this averages about 125 c. c.; but in achylia it is much smaller, the motor power of the stomach being usually well preserved. The differential diagnosis between a nervous achylia and an atrophic gastritis, whether primary or secondary, is according to most authorities made from the examination of the filtered gastric juice for the lab ferment and its zymogen. It is contended that in atrophic gastritis the glands which secrete this ferment, or rather zymogen, are the last to be attacked and destroyed, and so long as it can be demonstrated present the atrophy is not complete or does not necessarily exist at all, and when it is absent the total secreting structure of the stomach is destroyed and no hope can be entertained of even a partial restoration of secretion by treatment. Our experience, however, is opposed

to this view, as will be seen from a description of the cases we shall report in this connection. We have met with several cases in which repeated tests have failed to show the presence of this ferment or zymogen in the gastric contents, and yet after a variable period of time secretion has been restored, thus making it probable that a true achylia may exist and not be due to either a complete or partial atrophy of the gastric mucosa. The urine in these cases usually contains an excess of indican and ethereal sulphates, indicating increased intestinal putrefaction.

A careful physical examination should be made in all cases for the presence or absence of tumors in the abdomen particularly; the motor function of the stomach should be inquired into by the usual methods, and in cases associated with profound anemia the examination of the blood and feces should never be neglected.

PROGNOSIS.

This is by no means necessarily unfavorable. Surgery has taught us that an individual may live, perhaps indefinitely after complete removal of the stomach, and a patient with achylia is, so far as digestive work is concerned, in the same condition as an individual without a stomach. However, such a person is handicapped in his struggle for existence, and adverse influences which would have no effect upon a normal individual, especially in the nature of any excessive or unusual strain upon the digestive apparatus, will be shown in the achylic individual by a disturbance of the intestinal compensation, as indicated by diarrhea or evidences of malnutrition. If the intestines become seriously disturbed, and the compensation cannot be restored by diet and treatment, then the prognosis becomes grave and the condition may terminate fatally from inanition in a comparatively short time. The function of the HCl of the gastric juice is a dual one, for it not only combines with the proteid matter in the food sufficient to give an acid reaction to the gastric contents, and thus render the pepsin physiologically active; but it has the very important function of destroying micro-organisms introduced with the food, thus preventing fermentation and

decomposition, which probably would occur to a considerable extent otherwise. Owing to the absence, therefore, of this agent in achylia the stomach is more vulnerable to the attack or micro-organisms and nature protects herself as far as possible by preserving or even increasing the motility of the stomach so that it empties itself very soon after eating, and the food undergoes digestion in the intestines before fermentative changes can occur to any great extent.

It is in those cases in which this motility becomes impaired and the food remains too long in the stomach, and is delivered to the intestines in an improper condition for further digestion, that attacks of diarrhea are most likely to occur, and are usually attributed by the physician to some other cause than the real one. In the course of time finally secretion may be more or less completely restored, as is illustrated in some of our cases and also in a case reported by Murdock of a man 54 years of age in whom a complete achylia persisted for three years and then without any especial treatment secretion suddenly returned in normal amounts.

TREATMENT.

The condition naturally suggests the treatment. The food must be easy of digestion, thoroughly cooked and well masticated. The bread should be stale or toasted. Eggs and milk, which are theoretically ideal foods, we find are not well borne in most cases, especially in those in which much indican exists in the urine. They seem to increase the abdominal distress and gas formation in the intestines of which the patients often complain. Members of the cabbage family, all fried articles, rich sauces and gravies, sweet potatoes and the animal fats, except cream and butter, are to be absolutely prohibited. With these exceptions an ordinary diet is permitted the patient. A very strict dietary regime is unnecessary, and will usually do positive harm. So far as the drug treatment is concerned, we would naturally think at once of giving sufficient pepsin and hydrochloric acid to supply the deficiency of these substances, and this is perhaps rational in theory. It only requires,

however, a brief study of the subject to convince one of the absolute impossibility of accomplishing this. If we take the following as the average daily ration of an adult doing moderate work, and then calculate from previously determined experimental data the amount of hydrochloric acid necessary to combine with and convert into acid albumin the proteid matter of such ration and render the pepsin active, we get the following rather surprising result: Bread, 453.6 grams; meat, 226; milk, 113.4; broth, 453.6; sugar, 28.3; butter, 14.7; cocoa, 28.3; we find that the bread requires 1.36 grams of pure 100 per cent. HCl to combine with its proteid matter, the meat 4.52, the milk 0.41 and the cocoa 1.14, which, neglecting the amount required by the other elements of the ration, amounts to 7.33 grams. If we divide this by three to obtain the amount required by a single meal, and of course the dinner requires more, we obtain 2.44 grams, and as we usually prescribe the 10 per cent. acid this makes 24.4 grams as the amount required to convert into acid albumin the proteid matter of a single meal, which is almost exactly five-sixths of a fluid ounce. This represents, remember, the amount of acid which is required to convert the proteid matter into acid albumin and thus render the pepsin active, and to convert it into the further products of pepsin digestion, to which stage, however, gastric digestion does not usually completely go, will require amout as much more acid, or altogether one and two-thirds ounces of the dilute acid. In regard to the pepsin, why give it at all if we cannot give enough acid to render it active? It is our experience that the administration of HCl and pepsin seems to increase the discomfort and not in any way to do good. Since the principal function of the stomach is to dissolve or liquify the food, and thus prepare it for final and complete digestion in the intestines, we believe it to be more rational and find it to give better results clinically to prescribe pancreatin in 12 to 15 grain doses with 30 grains of sodium bicarbonate to be taken shortly after eating. This starts pancreatic digestion in the stomach and the food is thus delivered to the intestines in a state of greater or less liquifaction and the work of the latter is lightened to that extent. Occasional lavage of the stomach with a deci-normal solution of HCl or a solution of

formalin, 20 to 30 drops to the pint, we think is of service. Stimulating tonics of strychnine, iron, quinine and the bitters are also of much service. Cold bathing, proper exercise, regular hours and the cleansing of the teeth before and after eating should be carefully insisted upon. When constipation exists the bowels should usually be moved with enemeta rather than purgatives, owing to the possibility of disturbing the intestinal compensation. Salines are particularly injurious, much more so than small doses of calomel or rhubarb.

The few cases which follow will give a fair idea of the symptomatology, treatment and results:

CASE 1. Dr. H.; physician; æt. 40; weight, 190. Family history negative. Has never used alcohol; but has been an excessive chewer and smoker of tobacco. His present trouble dates back fifteen years and began with a sudden attack of pain in the epigastrium, followed by vomiting. The attacks have persisted up to the present time of the same character, and recently there has been some loss of flesh and strength. Appetite is good, and thirst excessive. After eating, between the attacks there are no abnormal sensations whatever referable to the stomach. Regurgitation of sweetish masses coming on 30 to 60 minutes after eating is a constant and annoying symptom. The attacks of pain recur once or twice a month, and are not caused by an especial kind of food, unless by occasional indulgence too freely in rice for a day or two. Many years ago he suffered from an obstinate diarrhea, which lasted for five years; but at present his bowels are regular, except that after an attack they are loose for a few days. The examination of the urine only shows an excess of indican. An examination of the Ewald test meal showed no trace of HCl, a total acidity of only eight, and no trace of either pepsin or the lab ferment. A condition of complete achylia existed. The quantity of fluid in the stomach was found by calculation to be 70 c. c., indicating the existence of good motor power. There was very little mucus. He was instructed about his diet, milk and eggs being excluded entirely, the care of his teeth and the avoidance of purgatives, and as medicine was given pancreatin and soda after each meal. He returned

to his home the following day with a request to report, but we heard nothing from him for several months when he returned to Galveston and informed us that he had gained considerably in flesh, had had no more attacks, and was much improved in every way. We had no opportunity to examine him again to determine whether the achylia persisted.

CASE 2. Mr. G.; bookkeeper by occupation; weight, 140 pounds; looks sick, and has lost twenty-five pounds in the past few months. The family history is negative. He had a severe attack of what his physician in Cincinnati pronounced ulcerative enteritis one year ago, and is suffering from looseness of the bowels at the present time. His actions contain considerable mucus, and occur several times daily and can only be controlled by taking one to two grains of opium daily and by lavage of the large intestine with creolin and astringent solutions. His previous general health was good. He has no appetite. The present trouble began a year ago suddenly with bowel symptoms and is due supposedly to drinking Ohio river water. He suffers a good deal with vertigo and headache, but less so now than formerly. Urinary examination only shows an excess of indican. After the test meal a total acidity of 10 was found, and no trace of free HCl or of the ferments. The quantity of fluid was 280 c. c., and the stomach contents contained considerable mucus. A diagnosis of gastric atrophy was made, and the usual instructions in the nature of diet as above described were given. Pancreatin and soda and strychine were prescribed, the latter with a view to improving the motor function of the stomach, which was evidently impaired. He was also instructed to stop the opium and the bowel lavage. He left Galveston the next morning for Ohio, with instructions to report; but we heard nothing from him for about three months, and then to the effect that the diarrhea had been promptly checked, his appetite restored, and that he had gained flesh. Later we heard that from indiscretions in diet, under the supposition that he was perfectly cured, he has had a relapse, but from which under the same treatment he promptly recovered. Since then, two years ago, we have heard nothing from him.

CASE 3. Mrs. O.; æt. 45; widow. She had never enjoyed good

health in her life, having suffered since childhood with headaches which in adult life had become complicated with severe and protracted attacks of vomiting. The attacks at present are recurring every six or seven days, lasting from one and a half to two days at a time. Her appetite is very poor; she is very sallow, thin and weak. The physical examination is negative. The urine contains an abundance of indican, some albumin and hyaline casts. The stomach examination showed a condition of complete achylia and a very poor motor power. Her diet was regulated and in this instance sweets were rigidly excluded, because of the belief that by undergoing fermentation in the stomach they were the direct cause of the attacks of vomiting. Pancreatin and soda, and afterwards caroid and also strychnine, were prescribed. A marked improvement in her general health immediately followed, and she went for a period of twelve months possibly without a single attack of vomiting. Two or three examinations have been made at intervals during the past three years which showed a persistence of the achylia; but the urine soon became free of albumin and casts. However, a recent examination, three or four months ago, showed the presence of a trace of free HCl and a considerable increase in the total acidity. Her condition at present is much improved over what it was at the time of the first examination, but she suffers yet a good deal from headaches, which are, however, but rarely associated with vomiting.

CASE 4. This case is of interest, not in the symptomatology, which presented nothing of importance; but from the fact that upon the first examination the HCl acidity was 34 and the total acidity was 66, and the quantity of fluid 190 c. c., apparently a case of hyperchylia. A sedative treatment was instituted, consisting of proper dieting and lavage of the stomach every other day with a weak solution of sodium bicarbonate followed by a one-fourth per cent. solution of tannic acid and the internal administration of atropine. After an interval of three weeks the test meal showed an absence of free HCl, a total acidity of 10, and a quantity of fluid of 160 c. c. Pepsinogen and the lab ferment were present, however. In spite of markedly stimulating treatment, locally,

medicinally and dietetically, this condition persisted during the time he was under our observation—a period of about a month. His general health, however, improved very much. At present, two years later, he is in good health and has no trouble with his stomach. As he has never returned to Galveston we have had no opportunity to determine whether the achylia persists or not.

CASE 5. Mrs. P.; æt. 30; weight 98 pounds. Very anemic and complains greatly of muscular weakness and dyspnoea on slight exertion. Is constipated with light colored stools almost continuously. This condition has existed for twelve months, with periods of slight improvement. Family history is negative. The physical examination is negative, as is also the urine, except for an excess of indican. Examination of the blood showed evidences of a secondary anemia, and in the feces no traces of parasites or their ova could be detected. The test meal gave the evidences of a complete achylia. No trace of the lab ferment or zymogen could be obtained, even after a deci-normal solution of HCl had been introduced into the stomach and removed after the expiration of twenty minutes and tested. She was put upon the treatment above outlined in the other cases, and various iron tonics, all of which latter, however, seemed to disagree with her. No special improvement resulted; but recently, after the expiration of about two years, her general health has improved without treatment, and an examination of the stomach contents shows the presence of free HCl in small amounts and a considerable increase in the total acidity.

DISCUSSION.

DR. BOYD CORNICK: I would like to inquire as to the relation that exists between achlorohydria and tuberculosis—whether the absence of secretion has any significance as regards tuberculosis, or *vice versa*? In other words, are they merely accidentally coincident, or is one causative of the other?

DR. MCCRACKEN: I would like to compliment the authors on the production of this important paper. This is a line of study that few of us know much about, and the authors have evidently given it a great deal of attention. Stomach troubles are coming up every day, and interest the general practitioner almost more than anything else. It is a field that is

comparatively new, but that cannot receive too much attention. If the profession would acquaint themselves with the analyses of the contents of the stomachs after these test meals, they would be able to treat such cases more scientifically and get better results.

DR. F. P. MILLER: As the result of my experience I want to emphasize what Dr. McCracken has just said about the importance of examinations of the stomach. It is, I believe, soon to become recognized as the examination of the urine now is for disease of the kidney. It is not wrapped up in any mystery. Any one can easily obtain a knowledge of the technique. The patient will always be grateful, and the results will be gratifying to the physician. Hydrochloric acid, I may say, in passing, is, in my opinion, the most overrated drug in the pharmacopeia. Analysis of the stomach enables us to prescribe general treatment.

DR. MORRIS, in reply, said: As to the question of the relationship between achlorohydria and tuberculosis, I think I stated that they were often associated, and that achlorohydria may be due to almost any cause. As to what has been said about the importance of stomach examinations, I may say that the students at the University of Texas are all taught the method of making the different tests. They can be taught it in a short time. All physicians should make these examinations because the results are often very valuable. It is just as important to have an analysis of the contents of the stomach made as it is to examine the urine or the blood. In regard to the use of pepsin and hydrochloric acid, what I wanted to bring out was that most cases of stomach trouble met with do not require any stimulation at all. In many cases there is too much secretion going on. I have seen many cases in which the stimulating drugs prescribed actually did the patients harm.

INFLUENZA.

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Influenza is regarded as a microbic disease, and it is generally presumed that the bacillus discovered by Pfeiffer is the exciting cause, but there is a difference of opinion on that point. It is pandemic, epidemic and sporadic, having been observed in Europe for many centuries, and of late years in this country; however, it may have been prevalent for some time, but not recognized by the medical profession.

Climatic and telluric conditions are especially to be considered in any epidemic, as cloudiness, damp weather, sudden changes in the temperature and variation in barometric pressure, are factors for an increased number of cases in any community.

It is peculiar, in that an attack does not produce immunity; in fact, favors the prospect of a recurrence. A certain per cent. of any population is immune, due to the natural resistance which is in proportion to the virulence of the bacillus and the favorable conditions for its propagation which necessarily governs the severity of the disease; therefore, we can readily understand why some localities have mild and others severe epidemics. Complications and sequelæ are more to be dreaded and expected in the latter.

The susceptibility of the infirm, senility, infancy, previous functional and organic diseases figure conspicuously in the predisposing causes; also those individuals that have a well-marked gouty diathesis.

The symptomatology presents many various phenomena and it has been termed the hysteria of epidemic diseases. It seems to be no respecter of any tissues or organ, and often makes a complete triumphant invasion. It is very common nowadays for the laity to attribute all their ills to "grip" and the sequelæ of the same, and the diagnosis is made and told the physician either in the office or

on his arrival at the bedside. The onset in the majority of cases involve the cerebro-spinal and respiratory systems, the former symptoms predominating in the initiatory stage. The usual clinical observation is as follows: History of distinct chill or chilly sensation, general mailaise, extreme aching of voluntary muscles referred to scapular, dorsal and lumbar regions, also lower extremities, described as soreness. Headache, frontal or occipital, with some photophobia and mucous membrane of conjunctiva and respiratory organs, usually affected with a feeling of tightness and constriction of chest, is elicited. Tonsilitis and pharyngitis, often marked, and constant pain referred to throat, which is increased on deglutition. Special characteristics, as extreme prostration, which is very perceptible on the slightest exertion, described by the patient as weakness and loss of strength, which produces a state of uneasiness on his part, sometimes bordering on simple melancholia. The temperature curve varies, usually expect 1 to 3½ degrees, and if no serious complications occur it will subside in a few days by lysis. Continuous high temperature is probably due to toxemia and deficient elimination, which increases the nervous manifestations. It does not follow that fever is the typical symptom, as cases occur with normal and occasional subnormal temperature. The condition of the integument is observed to be dry and moist at times, the former being the more frequent. In examining the tongue you do not find it dry and parched with sordes on gums, teeth and lips; but instead it is coated, but not brown, and with some indication of being moist. Stomach is irritable, and vomiting is not common, but anorexia is pronounced. Constipation does not occur so often as you would expect, and the bowels are often stated as being regular.

Complications are anticipated, but they are not so frequent. Pneumonia of a catarrhal type may invade one or both lungs, but physical signs are not typical and it usually is more to be apprehended in old and young people.

Different varieties of cardiac neuroses may be expected; also endo, myo and peri-carditis. Most frequent complications affecting the nervous system are cerebro-spinal meningitis, meningitis, myelitis, melancholia, hysteria, neurasthenia and neuritis: They are not

present in the initiatory stage, usually appearing after the acute symptoms have subsided and recovery of these serious conditions progress as recuperation takes place.

The above list of diseases readily indicates what effects the toxemia has upon the system. Stomach disorders are sometimes sources of anxiety, as stomatitis, gastritis and enteritis, also nervous vomiting, probably due to disturbance of center located in medulla oblongata. Some cases may present one of the varieties of nephritis, produced by irritation of the kidney cells, from elimination of excretory products, but this condition is sometimes present in other infectious diseases.

The after effects or sequelæ are of short duration, but this must not be accepted as a fundamental rule. It is now observed by the profession that the majority of our cases pursue a favorable course. It must not be overlooked that influenza occasionally rekindles a dormant inactivity of some unforeseen organic disease, which comes forth with renewed vigor and hastens our patients to their untimely demise. Then again, this disease is frequently engrafted on other acute or chronic ailments, which is not at all encouraging and necessitates a guarded prognosis.

It goes without contradiction that when the intercurrent conditions are pronounced, our mortality per cent. will be greatly increased. A clear conscience is a source of much comfort, as we fully realize that the diminished vitality and extreme prostration upon an already impaired constitution is more than any human being could withstand.

Cases are observed in which there is a perceptible lack of energy, with undue readiness to fatigue and loss of appetite, consequently diminished weight and anemia follow.

There is no other disease in which the sequelæ are so pronounced, except diphtheria. These conditions have been studied very scientifically during the past twelve years. Previous to that time our knowledge is meager.

Functional derangements of the nervous system are not unusual, and are due to direct effects of toxemia. Mental derangements are sometimes observed, such as melancholia, delirium, hypochondriacal

states, with occasional delusions and suicidal tendencies. Mental dullness and dementia are usually confined to senile cases. Types of melancholia are more prolonged; the other varieties are transient. Hysteria is aggravated, and states of trance or cataleptic stage may occur, and this condition generally follows the febrile stage. The presence of epileptic convulsions have been reported in some cases during the acute stage and recurred after a long period of quiescence.

The brachial plexus, intercostal and sciatic nerves often take on a neuritis, the multiple variety being unusual. A predisposition to a gouty diathesis is a forerunner of rheumatism, which is fibrous in character. This inflammation may become severe about articular surfaces and involve them, thereby simulating the articular variety, and might result in rheumatoid arthritis. Cerebral meningitis may develop. The cranial nerves are seldom affected, however, optic neuritis, irregular cardiac action and vomiting without nausea are examples of this type. Otitis media and abscess formation are to be apprehended and are trying conditions.

The diagnosis of influenza is not always possible, and no doubt many of us have felt the want of increased knowledge and experience. Those who are expert in microscopy can make examinations to clear up the mist, but the general practitioner has to depend on previous observation, judgment and recognized reference books to aid him in his diagnosis. If an epidemic is prevalent the problem is not so difficult. The above remarks have reference to masked types. An important point to bear in mind is the extreme prostration and depression of spirits is out of proportion to what is observed in other diseases affecting similar structures. We must differentiate by excluding acute follicular tonsilitis, acute muscular rheumatism or myositis, intermittent, malarial, typhoid, dengue and cerebro-spinal fevers; also measles in children before the eruption appears.

Uncomplicated cases run a favorable course, the death rate being practically nil. If serious complications occur, the mortality per cent. is increased and the prognosis must be guarded. It is well to remember that existing functional or organic diseases, also consti-

tution and age, figure prominently in the death rate. The proper management and treatment of influenza is simple and better understood than the symptomatology. It should be our aim to use supportive measures and stimulate the secretions and excretions. Instructions should be given about clothing and the necessity of being warmly clad; also that unnecessary exposure is not beneficial and favors relapse and complications. A preliminary cathartic is always necessary, and the best to be selected is either a saline or mercurial. I prefer for this geographical area fractional doses of calomel. It acts as an indirect cholagogue, intestinal antiseptic, diuretic and gastric sedative. There are many agents that can be used with satisfaction in different combinations and to suit the condition of the patient and the intensity of the attack. I seldom administer more than any of the following three in one prescription, as phenacetine, acetanilid, salicin, sodium benzoate, sodium salicylate, Dover's powders, philocarpine, salol and quinine sulphate. Stimulating agents are usually indicated and can be alternated with any of the above combinations. I generally prescribe strychnine and spirituous frumentum with some palatable vehicle. It is necessary to use expectorants if a severe bronchitis exists, and the ammonia preparations are the best if gastric irritability is not present. The application of cold compresses externally to the throat, and using chipped ice internally, produces a soothing effect for the pain and discomfort caused by the existing tonsilitis and pharyngitis. There is no objection to antiseptic gargles, and they are exceptionally valuable from a physiological standpoint. In regard to the dietary, it is best to administer easily assimilating food, especially of fluid consistency. In addition, it is important to keep the intestines in a soluble condition. Insist on quietude and relative rest, but it is not always possible to have our patients carry out this instruction, as many of them will insist on remaining up and attending to business matters—so-called "walking cases." During the period of recuperation, give an invigorating tonic suitable to the individual case, and advise the importance of unnecessary exposure and overexertion, which are frequent causes of a relapse. All complications and sequelæ of a serious nature require

important consideration, especially when the influenza, *per se,* is of minor importance. When the diagnosis of these conditions are made, it is always best to manage same as if it was the true disease. I consider it feasible to pursue this plan along with the basis of treatment now accepted in the ordinary type of la grippe. The laity are perfectly satisfied with the outcome of "grip," either for better or worse, and the profession is not so readily criticised as they realize that a severe attack is often fatal, especially when serious complications exist.

THE MANAGEMENT AND TREATMENT OF TYPHOID, OR ENTERIC, FEVER.

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EL PASO, TEXAS.

An acute, infectious fever, due to the implantation and proliferation of the typhoid bacillus of Eberth. Believing that this part of the subject would be more interesting to you than the whole, I decided to omit from my paper the etiology, pathological anatomy, symptomatology, diagnosis, etc., referring you to your works on the practice of medicine for information on these parts of the subject.

The patient should be put to bed at the earliest possible moment, strict quietude enjoined, placed under the care of a competent nurse, and all visitors prohibited. The room should be large, well lighted and ventilated, with a sunny exposure. All openings should be screened, to prevent the entrance and exit of house-flies, common carriers of this disease. The personal and bed linen should be changed daily and placed in a one-twentieth carbolic solution, until it can be boiled for at least half an hour. Nurses should be taught the importance of cleanliness in caring for typhoid patients, and shown that even their own health depends upon it. A fresh solution of chloride of lime (six ounces to the gallon of water) or an eight per cent. solution of formaldehyde gas, which is equally as effective, but more expensive, should be kept constantly at hand, and in the bed-pan and all vessels for receiving sputum, material vomited, urine, and discharges from the bowels, and more of the disinfectant poured over these secretions and excretions, and let stand for an hour, until the specific organisms have been killed; then emptied into the sewer, or, if in the country, poured on sawdust and burnt, or, in the case of large camps, the discharges should be emptied into a trench not less than four feet deep and covered with the milk of lime. After a discharge from the bowels the patient's buttocks should be washed with a solution of bichloride of

mercury, one one-thousandth, and the rectal tubes for enemas, thermometers, etc., after washing, should be kept in one-twentieth carbolic solution. The nurse should scrub her hands with soap and warm water, and bathe them in one one-thousandth bichloride solution after handling the bed-pan, soiled linen, etc. Water, milk, and other articles of food and drink for the patient should not be left in the sick-room, but brought in in small quantities as needed.

When it is understood that the organisms which produce this disease are present in the sputa, the matters vomited, the perspiration, and found in the urine in thirty per cent. of the patients, and the feces in ninety per cent., and that they will live in water for weeks and multiply, and will also live for months in soil and ice, and on linen from sixty to seventy days,—the necessity of observing these rules will be apparent to every one.

Of equal or more importance than perfect quietude of body and mind is diet. Milk has long been regarded as *the diet* in typhoid fever and it is a favorite article of food with me in most of my cases. When given with barley-water, Apollinaris, Manitou, or vichy, I find it more digestible than when given undiluted, but a certain per cent. of typhoid cases cannot take milk in any form during the febrile stage. In some instances it is actually poisonous to the patients, as evidenced by curds in the very offensive stools, increased tympanites and temperature, more restless and, in fact, worse in every way. Discontinue the milk, clean out the bowels with a dose of castor oil and copious enemas of normal salt solution, and twenty-four hours will show an improvement in the patient's condition. Fresh buttermilk is an excellent article of diet for most typhoid patients, and is usually enjoyed by them. The white of an egg beaten up in a glass of barley-water I have found very valuable in weak and irritable stomachs. Animal broths, made from chicken, mutton or veal, a little rice or barley being added, alternated with pea soup and strained gruels, are used by me in most typhoid cases. Fresh tomato juice, orangeade, and lemonade made with carbonated water I frequently prescribe with benefit and satisfaction to the patient. After the fever subsides I increase the rations by giving one egg just heated and beaten in a glass, with

salt added, and fed to them slowly with a spoon. Next, beef juice squeezed from a piece of broiled steak, or let the patient extract the juice himself, which is usually more satisfactory to him. *No solid food or exercise for ten days after the fever subsides,* is my rule in all mild cases, and in severe ones the period is longer. The food should be given systematically and at stated intervals, about every three hours, but more food can be taken and digested in the early part of the day while the fever is lower and digestion better than in the latter part. In all severe and prolonged cases, when the patient begins to show wear and tear, I add peptonoids or Panopepton to the dietary, with excellent results. In fact, I would hardly know how to get along without one of these articles of food in such cases.

My general rule is that all typhoid patients should have their bowels washed out with an enema of normal salt solution, with slight pressure, every afternoon or evening. This applies when the bowels are loose as well as when constipated.

In treating typhoid fever I have no specific to offer, I am sorry to say, but if I were forced to choose one remedy only, my unanimous decision would be *water*—all the patient would take internally and an abundance externally. At the beginning of the fever I use cold compresses over the abdomen whenever the temperature is above 100 degrees F., and have the cloth wrung out of cold water, or "ironed" with a piece of ice at short intervals. When this fails to control the fever, as it usually does, after the first few days, I have the patient's body, from his hips to his chin, sponged with tepid water as frequently as necessary to keep the temperature below 101 degrees F. I never use cold water in sponging a patient, nor do I sponge their limbs. Owing to the rapid evaporation in the dry section where I practice, I have this sponging done under a sheet to prevent chilling the patient's surface. The use of warm water, by sponging, has proved so satisfactory in my hands, in the dry atmosphere of the West, that I have not found it necessary to adopt the Brand method, and have saved my patients the exertion and worry incident to tub bathing. To reduce temperature, strengthen the heart, quiet the nerves, relieve delirium, and pro-

duce refreshing sleep, I find nothing equal to this sponging with warm water in typhoid patients.

Last, and least, medicinal treatment: A dose of calomel and soda to begin with is good treatment, and a few doses of phenacatine to relieve headache during the first few days will do no harm. Sulpho-carbonate of zinc has proved a very satisfactory remedy in my hands in shortening and modifying the course of the disease, if begun during the first week. I usually give it according to the following formula:

Zinc sulpho-carb.....grs. C.
Ess. pepsin (F.).....1 oz.
Syr. ging.....1 oz.
Pep. water, q. s., add.....4 oz.
M. Sig.: Teaspoonful in water every two hours.

Pneumonia and bronchitis occurring in typhoid patients rarely need any special attention.

Heart Weakness.—When the heart-beats exceed one hundred per minute I begin with strychnia of one-sixtieth grain every four hours, and if the frequency increases I shorten the intervals to three, and even two, hours, and if the patient's condition becomes critical I give it hypodermically. I regard alcoholics as second only to strychnia in sustaining a weak typhoid heart. Twenty per cent. of alcohol in liquid peptonoids usually meets the first indication for this remedy, and later on, if necessary, add whiskey and increase the dose as indicated, but rarely exceeding, except to bridge over an emergency, a tablespoonful every two hours. Digitalis, in my opinion, is of double utility. In such cases recumbency should be strictly enforced.

Hemorrhage from the bowels, which usually occurs about the third week of the disease, and in from five to six per cent. of male patients, but which is much less frequent in females and children. Cold compresses to the abdomen, if the patient is not *in extremis*, give opiates to quiet peristalsis, suprarenal extract hypodermically to constrict the arterioles, and normal salt solution either by infusion or hypodermoclysis if the hemorrhage was exhausting.

F. H., male, age thirty-eight, locomotive engineer, in third week of attack, on February 19th was taken with severe hemorrhage from the bowels. I was called by 'phone and advised that the patient was bleeding to death. When I reached the bedside the nurse informed me that he had passed the bed-pan three times full of blood. I saw the last one, and from his appearance and condition I was prepared to believe the whole story. Patient was blanched and almost exsanguinated, pulse 164, and barely perceptible at the wrist. Patient's head was lowered, feet elevated; M. XX. solution chloride adrenalin one one-thousandth (P. D. & Co.) was given hypodermically. Two pints of normal salt solution by hypodermoclysis, one under each breast, was given. After receiving this, his pulse had fallen to 148 and improved in character in 30 minutes and continued to improve from that time on. The adrenalin, solution, in fifteen-minim doses, hypodermically, was continued every three hours for a week longer, and there was no more hemorrhage. The salt solution was poured in the reservoir at a temperature of 104 degrees F., which was probably reduced to 100 or less by the time it passed through the six-foot tube and entered the patient's body. This was intentional on my part, for Dr. Robert Coleman Kemp, of New York City, has demonstrated that normal salt solution at a temperature of less than 105 degrees does not increase arterial tension, which would likely cause a recurrence of the hemorrhage, though it replaces the vital fluid lost and gives the heart volume to act upon. During a relapse some three weeks later, this patient died from perforation of the bowels. Whether the almost complete collapse of the patient, or the suprarenal extract, controlled the hemorrhage in this case I cannot say, but from my experience with adrenalin in pulmonary and other hemorrhages of the viscera, I believe it is the most potent medicinal remedy that we possess for controlling hemorrhages of the character named.

Peritonitis in typhoid patients is caused by perforation of the gall-bladder or intestine (when the latter, usually the lower part of the ilium). It is favored by indigestible food and hardened feces, occurs usually in third or fourth weeks, and in about six per cent. of the male patients and less common in females and children.

Under the expectant plan of treatment ninety-five per cent. die; but Keen claims that if operated on within the first twenty-four hours twenty per cent. will recover.

Bed sores should be prevented by having the patients change position frequently and bathing the back and hips night and morning in saturated solution of alum and alcohol, and the use of an inflated rubber ring, if necessary.

Relapses are said to occur in from eight to sixteen per cent. of all typhoid cases. I think these figures are very conservative. I am sure mine are greater. Relapses are usually mild and run a shorter course than the original attack, and the treatment should be the same.

Excessive tympanites is usually caused by undigested food, which should be removed from the alimentary tube and the offending article of diet discontinued.

Constipation should be overcome by enemas of normal salt solution.

Diarrhea rarely needs treatment, but if so, attention to the diet, and opium and bismuth usually control it.

Lastly, it is my firm belief, after an experience of twenty years, that when we learn to nurse our typhoid patients better, and dose them less than formerly, we will have more living monuments to our skill, and fewer tombs as evidences of our follies.

DISCUSSION.

DR. CROUSE: I would like to ask Dr. Turner what experience he has had of cases complicated by convulsions in the second or third week. I had one case in which there was no uremia, no history of epilepsy, but genuine convulsions took place, simulating those of petit mal. The theory of Dr. Brannon, of New York, in regard to such cases is that they are of toxic origin. I wondered whether the author of the paper could throw any light upon them from his experience. Another case in which there was a peculiar complication was that of a railway man who had been ill for eight or nine weeks, when he showed symptoms of having thrombosis An embollism developed, and while recovering from the embollism, which was of a cerebral type, the man died. I have only found sixty cases with similar complications in the literature relating to typhoid fever, and these

two cases struck me as being singularly interesting. The only other thing I wish to say is that I think we often irritate our patients by too frequent bathing. We are, it seems to me, too apprehensive of the fever. When the temperature is over 102½ we should undoubtedly use the cold sheet pack, and the patient will frequently drop to sleep in it, but unless the temperature rises to the point indicated the patient should be left alone so far as bathing is concerned.

DR. PASCHAL: I listened to the paper with a great deal of interest, but there are a few points in regard to treatment which I think it would be well to emphasize a little more strongly. One is the absolute necessity of posturing your patients. They will naturally lie on their backs, and will not change from one side to another unless forced to do it. The consequence is that you get a hypostasis of almost every organ in the body. There is the grand secret in the treatment not only of typhoid, but of any disease where the patients have to keep their beds for any length of time—keep them off their backs. I had a case lately of a lady who had been lying on her back for five weeks, and suffered, as a consequence, from a severe attack of hypostatic congestion. In all cases of the kind—and, indeed, whenever a patient is likely to be in bed for some time—I give the nurses explicit instructions to keep them off their backs. Sometimes it is necessary to put a plaster on the back to prevent them rolling back into the old position. This is a point that I have not found in any of the text-books, and I think it is a very important one. All nurses ought to be taught to attend carefully to this matter. Another point, I think, we fight temperature too much. It is a mistake to give drugs or wet packs to reduce the temperature, for whenever you combat temperature you combat the forces of the system. It debilitates the entire body, and acts injuriously on the heart. Fever is a conservative agency, and there is this further to be borne in mind, that the toxins are destroyed at high temperatures. They become harmless when the temperature is above a certain degree, from which it is to be inferred that some chemical change has been brought about in the blood by the rise in temperature which prevents the generation of new toxins. If I find my patient with a temperature of 104° and there are no other symptoms that the heart is giving way, I simply apply a sponge bath and an ice cap for the head. Otherwise I do not trouble about the temperature. When it gets up to 106° and 107° it is plenty of time to begin with cold packs. It is very seldom that I use hypodermatic injections of strychnine. I think this is a method of treatment that is much abused. The best way is to support the heart by proper nourishment, but to avoid stimulating its action.

DR. COLEMAN: I am glad to have heard this eminently practical paper and this eminently practical discussion. I heartily agree with Dr. Paschal as to the importance of not allowing patients to lie too long in one posi-

tion. Another point is this: do not let them get up too early. They should be kept in bed till far beyond the danger point.

DR. SHROPSHIRE: I appreciated the paper very much, but there was one feature that was neglected in it, and it has also been neglected in the discussion. We must remember that we have to contend with a disease that is self-limited if the strength will hold out. Gentlemen seem to forget the prime feature—that of conserving the vital energy of the patient. Giving doses of medicine every now and again and continually feeding the patient, thus taxing his energy, is a plan of treatment that is altogether indefensible. I always educate my nurses into the habit of giving food only five times a day, and that always at specific hours, and to arrange for the medication to be given at the same time, so as not to disturb the patient in the interval. I keep a close eye on the feeding, and only give patients what they can digest. The more we can feed them, without having fermentation and the ill consequences thereof, the better. Regular feeding and periods of rest I consider of the highest importance. I have had the best results where my instructions in this respect have been closely followed. As to medication, I use medicines, but they are of far less consequence than nursing and hygienic treatment. In the last six years I flatter myself I have not lost a single case of typhoid, although I do a country practice, and seldom have trained nurses. I make myself a head nurse and train those who have to do the watching and attending. I make them follow my instructions implicitly. It takes a lot of time and trouble, but I always find that I am well repaid by the results I obtain. To rely even on intelligent men or ladies as to when this or that should be done is a mistake. They are not capable of interpreting the symptoms. The physician must do that himself, and give clear instructions as to what is to be done.

DR. J. C. CARLETON: I wish to thank Dr. Turner for his excellent paper and Dr. Paschal for his practical remarks. I agree with the latter particularly as to the necessity of not disturbing the patients too much, and also of keeping them off their backs. In reference to the sponging and the danger of chill which the author of the paper spoke of, he would overcome some of his difficulties if he took a rubber tube and formed it into a coil and applied the ice water through it. In that way you avoid chilling your patients, at the same time that you reduce their temperature. I would not disturb a patient with a temperature of 102° unless there were some nervous symptoms. I consider that in regard to feeding and giving medicine every case is a law unto itself. You cannot treat patients alike unless they have the same kinds of stomach and nervous organism. I do not think any of them require too much medicine.

DR. J. C. HERRING, Forney: I would like to say a word about the importance of alimentation in a great many cases. My practice has always

been to direct my attention at the beginning to regular alimentation, and the article of diet which I have come to regard with most favor is unskimmed sweet milk. I feed my patients every three hours during the day and every three hours during the night. The good results I have obtained I consider are due more to alimentation than to any drug.

DR. BETHEL NOWLIN, Jonah.—I would like to endorse what a previous speaker has said as to treatment. There is a great deal of typhoid in my part of the country, and it has fallen to my lot to treat a considerable portion of it. I try both warm and cold sponging. In summer I find cold water the best. I never have any trained nurse. My plan is to open the bowels with a mild laxative. I put them on sulph. carb. zinc, and in some cases I use a little listerine. I look upon medicine, however, as of little importance compared with careful dietetics and good nursing. One suggestion I wish to make, viz.: to open the bowels when constipated by enemata. I object to the use of unskimmed milk, as it is liable to produce constipation and indigestion by reason of the masses of coagulated casein. I very much prefer buttermilk, which is not open to this objection. As to the convulsions that have been spoken of, they may have been caused by cerebral congestion or they may have been due to high temperature in a nervous patient. I control the temperature above 103°; below that I leave it alone. I believe in feeding every four hours.

DR. D. M. COOKE, Jonah: I enjoyed the paper very much. This disease, in my opinion, is the most important which the country physician is called upon to treat. The last speaker and myself practice in the same district, and within a distance of sixteen miles we lately had eighty-six or eighty-seven cases—a perfect epidemic of typhoid which we two had to treat. The infectious germs got into a water course, and in that way was conveyed to nearly all the families using the supply. As to Dr. Paschal's suggestion about changing the position of the patients in bed, I think it a very valuable one, and should not be forgotten. As to treatment, I have found the use of salol and bismuth useful, but medication generally does not amount to much in the treatment of this disease. What you have to do primarily is to regulate the bowels and take care of the temperature. We should not be too much afraid of the latter. Leave it alone, I would say, unless it reaches 103°. I use water for controlling it, never ice. I use cool water, applying it with a sponge bath or in a sheet. In one case in which cool water produced a rigor, I tried tepid water, and got good results. I give a dose of strychnine if necessary every four hours during the day when there is cardiac depression, and also when called for in the middle of the night. If it is not called for I let my patients sleep. I have the bed linen frequently changed and disinfect the stools.

DR. H. A. WEST: It is difficult, Mr. Chairman, for me to remain silent

when the subject of typhoid fever is under discussion. On this occasion, however, I wish to call attention to one point only, and that is the absence of any reference to the cure or abortive treatment in the discussion. At the Denver meeting of the American Medical Association in 1897 I read a paper on the "Rational Antiseptic Treatment of Typhoid Fever." My object in that article was to combat a widespread tendency to disseminate what I conceived to be a false and dangerous doctrine, viz.: that typhoid fever was a disease which could be cured or aborted in its early stages by a certain combination of drugs. Not only was this claim made by Dr. Woodbridge and his followers, but it was freely stated that any physician who failed to jugulate an attack of typhoid fever within a few days should be held criminally responsible. I shall not recapitulate the reasons which were convincing to my mind of the falsity and unfairness of such conclusions. The Woodbridge treatment seems to have gone to the forgotten limbo of unproven hypotheses. It is a significant fact that no mention of it has been made in the discussion today. It is true now, as it has always been, that while the physician can accomplish very much in the *care* of his typhoid patient, he is powerless to *cure* him. From the nature of the pathological processes involved the disease is self-limited, and I am glad to see the tacit acknowledgment of the fact not only on this floor, but in recent medical literature.

After some rambling remarks by various gentlemen, the discussion was closed by Dr. Turner.

DR. TURNER, replying on the discussion, said: In answer to the questions that have been put to me, I have to say, first of all, that I have never seen a case of typhoid complicated by convulsions or by a thrombosis. As to the question of feeding, I would say, give the patient what he can digest. I do not believe in fixing on any particular number of hours. You can easily tell whether they are digesting it or not. The rule is to give them what they can digest.

SECTION ON OBSTETRICS AND DISEASES OF CHILDREN.

CHAIRMAN'S ADDRESS.

J. M. FRAZIER, M. D.,
BELTON, TEXAS.

"Of man's first disobedience and the fruit of that forbidden tree, whose mortal taste brought death into the world with loss of Eden till some greater one arise and restore the blissful seat, sing heavenly muse."

These familiar opening lines of Milton's Paradise Lost have seemed to me a fitting prelude to opening a section which an experience of twenty-two years devoted exclusively to the general practice of medicine convinces me covers more than half the life work of the general practitioner.

Dealing exclusively with the health and happiness of the fair sex, the Chairman in his report is sorely tempted to soar among the lofty peaks of poetic fancy and Byronic fire. But a high regard for the importance of the realistic and practical work of the general practitioner compels him to desist and instead present with crayon stroke the darker side of the picture of woman as she knocks at our professional door seeking relief from pain or a restoration to that normal condition from which a too zealous devotion at fashion's shrine or a violation of nature's inexorable laws has dethroned her.

I shall not attempt in my report as Chairman to occupy the valuable time of this Association in a recapitulation of the various advances made within the scope of this double section during the past year. You doubtless have had access to the same journals, the same reports of sections, State and national, that have engaged my earnest consideration. You have digested and applied the claims

of the masters and adopted this and rejected that as your good practical common sense dictated; and the individual papers in this section may well be expected to cover what is worthy of consideration. Instead of this, without apology, I shall have to do with the abstract rather than the specific and deal in glittering generalities and the general trend of medical opinion as I see it in the light of the early dawn of the twentieth century, as it shines on the fertile and well-tilled field of obstetrics and diseases of children.

PREGNANCY.

This condition, from conception to confinement, is to be regarded as a strictly physiological process and, barring faulty function, physical deformity, and organic defects, meets but little assistance at our hands.

From the sacred precincts of the pregnant uterus nature cries with clarion voice, *noli me tangere,* and the meddlesome midwife alone unheeding will dare invade or interfere.

The office of the conscientious, intelligent physician in this condition has principally to do with the correction of faulty function and the prophylactic practice of possible threatened complication.

Our patient should be taught the importance of consulting us in the early stages and remain in close touch throughout the entire period, a proper mode of living, avoidance of undue excitement, suitable clothing, diet and exercise should be carefully inculcated, while we endeavor by rational advice and suitable remedies to correct faulty digestion and assimilation. Overcome constipation and stimulate any lack of eliminative action on the part of the kidneys and skin. By following strictly this general line of prophylactic practice I feel sure we will often avoid grave obstetric complications and sequellæ which otherwise the most brilliant ingenuity of the obstetrician would have been unable to successfully combat; and while our services may not be appreciated, our improved statistics will furnish an ample recompense.

But I fear the day is yet far distant when patient and practitioner will occupy this ideal relationship and we will continue to

be called upon to meet the serious complications of pregnancy face to face, without previous warning or time for preparation or prevention. Then it's a fact and not a theory that confronts us, and decision and action must be prompt, bold and tactful, for often two lives are in jeopardy and dependent on the skill with which we are able to meet the emergency. Then do we realize the responsibility and high calling of our noble profession. Among the more common and most dreaded complications of pregnancy, I may mention in connection post partum hemorrhage and placenta previa. These need to be met with with clean hands, steady nerves and stout hearts. With plenty of hot sterile water and yards of aseptic gauze we grasp firmly the uterus and, incidentally, "the situation" and save many lives that erstwhile would have flickered as quickly as the expiring flame of the candle at the north wind's breath. Incidentally a transfusion contrivance for normal salt solution should form a part of the armamentarium of every well-equipped modern obstetrician.

In placenta previa, the life of the child is a matter of minor and secondary consideration and it is good practice as soon as this condition is fully determined to proceed as expeditiously and skillfully as possible to empty the uterus irrespective of the period of pregnancy. This is one of the few exceptional cases where conservatism with a view of saving the child is a dangerous and hazardous practice.

Puerperal sepsis, or childbed fever, as known, dreaded and often encountered a decade gone is in modern obstetric practice a rare affection and in most cases considered a grave reflection on the skill and aseptic technique of the attendant. Yet, among the poor and more ignorant class of our patrons, in spite of our utmost prophylactic endeavors, we will yet occasionally meet this dreaded and dangerous complication. Here again we are called upon to throw aside conservative practice and boldly remove the germ-laden material that furnishes the nidus for the invading foe, while we support, nourish and strengthen the natural vital forces of our patient. I have had no personal experience with the use of serum therapy in

this condition. I believe it is yet in the experimental stage, with but little prospect of proving efficacious.

Here the irrigating curette in skillful hands, backed by a generous fountain of sterile water, finds its most brilliant field of glory and accomplishes its grandest victory. Thorough curettage with thorough irrigation, followed by a generous packing of the uterine cavity with iodoform, or other antiseptic gauze, if an early resort, usually brings a radical reduction of temperature and a rapid restoration to a normal condition.

Here again the transfusion of normal sterile salt solution into the circulation seems to favor the more rapid elimination of the germs that have already invaded the system and promises soon to displace the administration per orem of all germicidal agents as more rapid, more rational and more efficacious.

Permit me to refer in passing to a danger not altogether imaginary in using the curette in this condition. Either from the softened flaccid state of the uterine walls, or the lack of tone and resisting force of the circular muscular fibrous, the instrument may easily perforate and enter the peritoneal cavity. Nowhere in routine practice is the tactus eruditus more necessary than in curetting a septic uterus. Twice within my personal knowledge has this accident occurred, once in my own practice and once in that of a conscientious confrere now dead. Both cases made, I am glad to report, good and uneventful recoveries, and neither ever suspected they had been the victims of so grave and serious an accident. Needless to say, neither was extensively advertised at the time. In my own case the curette while being gently handled seemed all at once to meet no resistance and dropped into a bottomless cavern. Its withdrawal was followed by the entrance into the uterine cavity of a generous handful of mesenteric fat. Supposing this to be placental tissue with membranes attached, I attempted to remove it, the fingers replacing the curette. As the mass began to come within the range of vision I saw my error and as the tissue was too much injured to make it safe to replace, I ligated en masse as near the rupture as possible, removed the mass with scissors, flushed out the uterine cavity with hot sterile water, packed with gauze, put the patient to

bed and lived about forty-eight as miserable hours as ever falls to mortal's lot. To my surprise there was but little shock, and the patient proceeded to make an absolutely uneventful recovery. This accident is worthy a more extensive report, and when time enough shall have elapsed to partially remove the painful sting of personal humiliation I propose to report in full, with some remarks as to causes that may predispose to favor this accident, even when the greatest skill and care is used. For the present *verbum sap.*

Eclampsia, or puerperal convulsions, is another grave complication which I fell sure would be but rarely met were the relationship between the intelligent obstetrician and his pregnant patient more cordial, close and confidential.

Occurring before the completion of labor no time should be lost, while chloroform to the point of surgical anesthesia is being induced, in emptying the uterus of its contents. Then stimulate nature's crippled functions to eliminate toxines and retained effete material which has so seriously embarrassed and upset the nerve centers. First, when there is ability to swallow, with large doses of calomel and well-diluted saline purges, then large high warm saline enemas with such diuretics and diaphoretics as may be at hand.

In chloral morphine and the bromides I have but little faith in this condition.

Veratrum has seemed in my hands more nearly a specific than any one drug. Given hypodermically in ten to fifteen minim doses of Norwood's tincture, repeated at fifteen to thirty minutes intervals till thorough physiological action is manifested and the pulse reduced and kept below ninety, it has rarely failed to control the spasms until the other eliminative remedies had completed their perfect work; and I believe it is as devoid of danger when carefully watched as any remedy of so powerful virtue. The recumbent position should be rigidly maintained during its administration, with the head low, and any tendency to vomiting or faintness controlled by the prompt administration of an alcoholic stimulant.

Mal presentations should be recognized early, before full dilatation or a rupture of membranes, and, when possible, corrected by

bimanual manipulation; otherwise a resort to podalic version, or some form of obstetric forceps is forced upon us. Of the latter instruments I possess pairs, long and short and of various curves, and was taught their use by such masters as Penrose and Goodell, and yet in twenty-two years of what I believe has been, for a general practitioner, and average obstetric practice, I can count the number of times they have been brought into use on the fingers of my two hands.

And I don't think I have ever failed to use them when the best interests of mother and child demanded. I may have been more fortunate in the easy character of my cases than other members of the profession, but from the disproportionate number of forceps cases reported by some confreres, I have often thought to myself, and now say privately and confidentially to you gentlemen, that sometimes their use may have been prompted by an over zealous desire to assist nature before a formal invitation had been extended, or to exhibit their superior skill in the manipulation of these beautiful and rarely useful instruments.

The blessings of chloroform to the human race has probably been more marked in the relief of the pains of childbirth than in any other one condition, and, with rare exceptions, should come into general use in obstetric practice. It is calculated more than any one agent to strengthen the bonds of affection between the appreciative patient and the sympathetic intelligent physician.

A deformed or contracted pelvis, when of such a nature as to render the passage of the foetal head impossible, calls for one of two operative procedures, symphysiotomy or cæsarean section.

Statistics seem to indicate the latter to be fully as safe and a far superior operation, if we take into consideration the future usefulness of the mother.

I would seriously commend as routine practice, as soon as practical after the completion of labor in each case, the careful inspection of the genitalia of the patient, and the immediate repair of any lacerations of perinium or vagina that may appear. This I regard as just as important as the repair of solutions of continuity

of other tissues. It is just as easy, and the results will often curtail the manifold labors of the overworked gynecologist.

DISEASES OF CHILDREN.

I believe it is a conservative estimate to state that one-third of the time of the general practitioner is devoted to the alleviation of the ailments incident to childhood. Hence the importance of careful study and consideration of this branch of practice. The popular idea prevalent among the laity that the treatment of an infant is to a large extent a matter of guesswork on account of our being deprived of the advantage of subjective symptoms, is an error, and the doctor who has cultivated a habit of close and accurate observation in this class of patients can often arrive at a quicker and a clearer diagnosis than in his adult patients who burden him with a cloud of subjective symptoms, imaginary or assumed. Our little patients are at least, honest, and are generally what they seem to be. But in order that we may read and translate their symptoms correctly, we must know the child and its habits and characteristics in health, as well as in disease.

The trend of advanced modern practice in the management of diseases of children is in the direction of making this a hygienic and a feeding proposition, strictly in contradistinction to our former reliance on drugs as therapeutic agents to relieve and correct all infantile ailments.

The new-born infant should, as soon as practical after separation from its placental attachments, receive a thorough all-over warm bath, first cleansing the eyes with sterile water, before soap is added. After the bath, the cord being well wrapped in folds of clean gauze or linen, a firm, smooth abdominal bandage should be applied, and worn for first month. The child should then be clothed in warm, soft, loose clothing, and placed at the mother's breast. The nurse should receive strict injunctions to refrain from doping on teas and other decoctions, pending the appearance of the mother's milk, and give nothing but an occasional spoonful of warm sterile water. Ordinarily, if the infant is kept clean and

dry and comfortable, it does well on the small amount of fluid colostrum in the breast the first forty-eight hours. It should be nursed at about two hours intervals during the day and four hours at night and at regular times, so as to form regular habits. For habits, good or bad, can be, and are, formed at a very early age. The full bath should be given daily and the mouth thoroughly cleansed.

In those unfortunate cases where the mother is unable, or it is thought inadvisable to nurse her own child, we should advise, as the best course to pursue, 1st, a wet nurse; 2nd, good, healthy cow's milk, giving minute instructions as to dilution and a modification, so as to correspond as nearly as possible to mother's milk, only sufficient for one feeding being prepared at one time and the supply kept in immaculate vessels; 3rd, condensed milk; 4th, some of the various artificial infant foods. Here there can be no ironclad laws of routine practice. Every infant is a law to itself, and on the judgment, care and watchfulness displayed will depend the future health and happiness of the baby. Many heartaches and much of the fearful mortality of the first two years of childhood could be avoided if mothers and nurses were more thoroughly impressed with the vital importance of proper feeding and hygienic management of the little ones.

The delicate organs and sensitive mucous membranes of the infant demand the greatest care in prescribing drugs as therapeutic agents in this class of patients. Syrups and highly flavored elixirs as vehicles are objectionable.

Ordinarily drugs, when obviously indicated and demanded, should be given in infinitesimal doses, and preferably in dilute watery solutions.

The discovery and timely demonstration of the preventive and curative value of antitoxine in the management of diphtheria, marks an era in pediatrics almost, if not quite, equal in importance to that of the discovery of vaccination as a prevention of smallpox in general practice. The rapid acceptance and general use of the discovery is creditable to the broad gauge tendency of modern scientific medicine, and already the percentage of infantile

mortality has been greatly lowered. Time enough has elapsed and now there are but few members of the profession among the most radically conservative who will decline to make use of this, the greatest of modern medical advances in the management of these desperate cases.

And now, gentlemen, in concluding a rambling and imperfect report as chairman of this section, allow me to thank you for the distinguished honor of selecting me to preside over this, which I regard as the most important section in the State Medical Association.

May we all, gentlemen, continue to consecrate the best efforts of our lives to the study and consideration of the best means to prevent and alleviate the ailments of our noblest charges, the mother and her child.

DISCUSSION.

DR. TAYLOR HUDSON, Belton: It occurs to me that one of the greatest responsibilities of the doctor in regard to newly born children has been overlooked in the paper. I refer to the care of the child's eye. I do not leave that to the nurse or to any one. I make a point of attending to it myself. Another point I would like to refer to, and that is the treatment of the cord. Personally, I do not like the idea of putting anything on it—neither bandage nor anything else. There is no use complimenting the author on his paper. He is old enough and knows enough of his subject not to require complimenting; but these are two practical points that I desired to mention.

DR. W. H. MOORE, Runge: I suppose dressing the cord is a moot point in the profession, and no doubt there are two sides to it. It is a question, too, that confronts every one of us. Most of us who have dressed with bandages, etc., have noticed a tendency to sloughing of the soft parts. This can be avoided by leaving off the dressings, and washing the place just as you would other parts of the child's body. It does just as well, and in some respects better. You can keep it clean, and that is all that you require to do if you keep that band off. The band is often tied too tight, and brings on colic, distension of the bowels, and great pain. The child, under these circumstances, will probably slacken the band, and when you are called back the child may be dead. I believe many children have died in this way from tight bands.

DR. A. B. GARDNER, Bellville: This is a very practical subject and a very practical paper. It embraces nearly the whole field of obstetrics, and nothing is of more importance to the physician and the family than successful and good work in this department. The subject of cleanliness or asepsis is one that should engage our attention more. Labor is only a normal process, and as a rule does not involve much danger. The duty of the physician is to guard against danger, and not interfere too frequently. I notice that the doctor says that we should use forceps whenever we think it necessary. The question as to when it is necessary must be determined by a man's own convictions as to the forceps. I believe they should be applied early whenever labor is delayed. There is no more humane act than to apply chloroform and forceps under such circumstances. It is a mistake to wait for nature to terminate her labors. In regard to cleanliness, the great thing is to render the parts thoroughly aseptic and keep them so. The chief trouble to avoid is puerperal fever, and the more we attend to aseptic measures the more successful we will be in our treatment of cases of this kind.

DR. W. B. MCKNIGHT, Mansfield: The most interesting part of the paper to me was that in which the doctor discussed the question when to use the forceps. My experience is that we are never justified in using them as long as the head will recede after a pain. I do not know a better rule. If it will not recede, then the forceps ought to be used. I have had sixteen years' experience, and I have not had occasion to use the forceps more than twice.

DR. C. E. CANTRELL, Greenville: I should like to say a few words on this very important subject. With reference to the best way of dealing with the cord, I may say that personally I have not had much trouble with it, but I have heard of a few cases of tetanus following defective dressing. The way I usually deal with the cord is one my mother taught me, and it causes less trouble than any other plan with which I am familiar. I tie it in one place, and then get every bit of the gelatinous mass out. A cord so treated will take care of itself. Then you have not a great heavy mass swinging from the abdomen. Simply tell the nurse to let it alone. It will dry up in one-fourth of the time. Dr. Hudson referred to the necessity of paying greater attention to the eye of the newly born child. I fully agree with him that every obstetrician should attend to this. If they did we should not have so many blind people. My custom is to drop a little nitrate of silver into the eye of every child. As to the forceps, I apply them as often as I think necessary, and a good many would think it pretty frequent. I have never had any damage from the use of forceps, but I never apply them without anxiety. I would rather at any time take a knife and open an abdomen; it would give me less

concern. A man must in any case be dexterous with the use of forceps to justify his using them; the man who uses them a great deal no doubt becomes more familiar with the way to apply them.

The following papers were read by title: "Importance of Early Recognition and Prompt Rectification of Deviations from the Normal Mechanical Evolutions of Labor," Dr. J. F. Y. Paine, Galveston; "The Management of an Uncomplicated Case of Labor by the General Practitioner," Dr. W. H. Munday, Terrell; "The Management of the Third Stage of Labor and of Hemorrhage," Dr. B. F. Kingsley, San Antonio; "Eclampsia," Dr. Aug. D. Ferguson, Frost; "Summer Complaints of Children," Dr. Aug. D. Ferguson, Frost.

SECTION ON SURGERY.

THE DIAGNOSIS AND TREATMENT OF HEMORRHOIDS.

JAMES P. TUTTLE, M. D.,
Professor of Diseases of the Rectum, New York Polyclinic.

Before one can attain the highest art in the treatment of any surgical disorder, it is necessary for him to be able to make the most accurate and distinctive diagnoses. A large majority of the mistakes made in the treatment of rectal diseases are due to the fact that surgeons act upon superficial symptomatic evidences, instead of an actual knowledge of the condition of affairs. The fact that bleeding from the rectum after stool is such a common symptom in hemorrhoidal disease leads many physicians to accept the selfmade diagnoses of their patients without local examination of the parts, and to treat them by salves, suppositories, etc., until these remedies have proved their inefficacy, and then to suggest an operation. Unfortunately, many of these cases, thus superficially observed, turn out to be cases of a more serious nature, in which the bleeding or hemorrhoids are but symptoms.

Even those who are more accurate in their work, and less averse to insistence upon local examination for every local disease, have been in the past content to rest their diagnoses upon digital examination, frequently made with the clothing in position and without even a view of the parts. So far as it goes, the finger is undoubtedly the most useful instrument in examination of the rectum, but it has its limitations in the first four inches of the rectum, and in ordinary varicose hemorrhoids it is exceedingly inaccurate, for it is impossible to feel them when collapsed. Not only is this true, but it gives no idea of the actual condition of the mucous membrane of the rectum and sigmoid above the four inches which can be felt, and very little of that within its reach.

The time is past when careful surgeons rest their opinion upon such superficial examinations. Modern ingenuity has devised for us means by which our diagnoses can be made absolutely accurate in the rectum as well as in all the orifices of the body. Laryngologists would no more think of making a diagnosis in throat disease without looking into the organ than would a proctologist consider giving an opinion upon rectal diseases without ocular observation at the present day. Feeling is a most useful adjuvant in all examinations, but it cannot possibly take the place of absolute sight. Since Kelly demonstrated to us the possibility of introducing a straight cylinder into the sigmoid flexure, the field of rectal diseases has largely widened and our knowledge of their pathology has become much more accurate. While the modern instruments are a great improvement upon those of this noted surgeon, the great impetus which has been given to the study of rectal diseases in the past seven years is practically due to him. The modern pneumatic proctoscope is but an evolution of the Kelly tubes, devised to overcome difficulties which were found in the use of his noted instruments, to give a wider and a better view of the parts, and to enable us to make examinations in positions and under circumstances in which they were formerly impossible.

The instrument which I have the pleasure to exhibit to you today as a means of diagnosis, is a modification of the Kelly tube which has gradually evolved from the suggestions of Laws, Pennington, Beach and others. It consists in two cylinders. The small one serves to carry the electric light, which is thrown direct upon the parts observed, and is closed by a glass globe at its distal end. The larger cylinder furnishes the means of viewing and treating any portion of the rectum or sigmoid throughout its extent. Into it an obturator fits, which is used only for passing the instrument through the sphincters. After this the bayonet-fitting plug, in which there is a glass aperture and a small tube for the admission of air, is fitted into the end of the larger cylinder. The rubber hand-bulb is then attached, and by it the rectum is inflated, so that the whole gut may be viewed up to the sigmoid flexure without passing the instrument any further in. The gut being distended,

however, the tube can be passed upward to the sigmoid flexure without impinging upon the surfaces of the rectum, thus avoiding any traumatism or pressure upon tender spots. The pneumatic pressure being continued, the sigmoid is lifted up from the pelvic cavity and straightened out upon the rectum, so that the straight instrument can ordinarily be introduced even into this portion of the gut, practically without coming into contact with its walls. As the instrument is carried in through this dilated space, every portion of the circumference of the intestine is constantly in view, and if there be stricture, ulceration or neoplasm, either low down or high up, it can be accurately seen. By this means the final diagnoses of rectal diseases from symptoms and through inferences are made obsolete. We no longer think or opine concerning a disease, we see it and we know it. Such an examination is necessary in every case of supposed hemorrhoids, simply to eliminate all possibility of a more serious disease above as a cause of the hemorrhoidal affection, and to be able in giving a prognosis to the patient to tell him whether the removal of his hemorrhoids will result in the cure of his symptoms or not.

As the tube is withdrawn through the anus, one is able to accurately observe the hemorrhoid-bearing area, and to determine (whether he has been able to feel them or not) the presence or absence of varicosities, erosions or ulcerations in this area. The examination, while slightly painful in some patients, is ordinarily free from this in the large majority, and I have never found it necessary to administer an anesthetic in order to carry it out. This method of diagnosis is not only important in determining the presence of hemorrhoids, but, until we learn to make a more accurate diagnosis than this, our success in the treatment of this disease will be much limited. One should not only know that a patient has hemorrhoids, but he should determine their cause and their type.

I shall not consume your time by going into a discussion of the etiology of this disease. There is scarcely any condition to which the human flesh is heir that has not at one time or another been accused of producing piles. Age, sex, occupation, habits, environments, heredity, temperament, climate and seasons, anatomical con-

formations, constipation, drugs, diet, strain, tight lacing, external irritations, constitutional diseases, hemorrhages and both atony and spasm of the sphincter muscles, have all been called into account for their development. Practically one may say that the erect posture, chronic constipation, muscular strain, and diseases of the genito-urinary organs are the most frequent causes, and where any of these conditions exist, operations upon the hemorrhoidal tumors are not likely to prove successful in the relief of the patient's symptoms, unless these etiological factors are at the same time remedied. Time and again have I seen patients suffering from hemorrhoidal symptoms, bleeding, aching in the back, prolapse at stool, and spasm of the sphincter, all due to nothing but a retroverted and displaced uterus, and all relieved by the adjustment of a properly fitting pessary. Time and again have I seen these same symptoms accompanied by a stricture and inflammation of the deep urethra, the removal of which has resulted in the entire relief of the hemorrhoidal condition. In certain conditions of other organs, in which hemorrhoids are but a symptom, any interference with the latter may prove most detrimental to the patient. Particularly would I call attention to the inadvisability of interfering with hemorrhoidal fluxes in cases of cirrhosis of the liver. It has ever been shown that in these cases the hemorrhages are without doubt to a certain extent salutary, and where they are discontinued by operation or local treatment, the patients have rapidly developed anasarca or general dropsy, and death has been the result. Some of the older surgeons have even gone so far in such cases as to attempt to re-establish the hemorrhoidal flux by opening the veins or cauterizing the parts so as to thin out the vessel walls, and thus subject them to rupture and bleeding whenever unusual congestion in the contracted liver occurs. These and many other considerations must be taken into account whenever a case of hemorrhoids presents itself for treatment.

Not only should we recognize the causes of the disease, but its type. A large variety of hemorrhoids have been described under various names, but practically one has to deal with but two general classes, External and Internal Piles.

EXTERNAL PILES.

These may be divided into thrombotic, varicose, inflammatory and connective-tissue hemorrhoids, and each of these varieties demands a distinct kind of treatment.

The thrombotic hemorrhoid, which consists simply in an extravasation of blood into the cellular tissue around the margin of the anus, is one of the simplest and easiest conditions to treat, if attacked radically upon its first appearance. It comes on as a little stinging or sharp pain, followed by a slight swelling, which increases, and as it increases the character of the pain changes to that of aching, throbbing and fulness. If seen at first, it may appear as a simple globular swelling without any distinctive color, or it may have a dark blue or purplish appearance.

There is but one treatment for this condition, and the sooner that it is applied, the better. It is my practice never to allow patients suffering from this condition to arise from my examination table until the clot has been turned out. The hypodermic injection of a little one per cent. solution of cocaine into the skin over the tumor enables us to make a slight incision parallel with the longitudinal folds of the anus, through which the clot can be enucleated without difficulty and without pain to the patient. As soon as this growth is removed, a small strip of iodoform gauze is crowded into the wound, not for the purpose of controlling hemorrhage, but to avoid the reproduction of a clot, which is likely to take place if the edges of the wound are allowed to come in contact with each other. This packing is left in situ for twenty-four hours only, it is then removed and the edges of the wound approximated by pressure. There is absolutely no danger of hemorrhage, and if these cases are properly treated at once, under antiseptic precautions, they will uniformly heal within two or three days. If left alone, however, the little thrombi may become infected, eventually causing abscess or fistula, or they may become organized and remain as foreign bodies, continually irritating the parts locally and annoying the patient for indefinite periods.

The varicose type of external hemorrhoids consists in a general

varicosity of the external hemorrhoidal veins which surround the anus. They are imperceptible, except when the patient goes to stool or sits in the squatting position and strains. They are not painful as a rule, and are practically never complained of, except by the higher class and hypersensitive individuals. It is not from discomfort, from hemorrhages or any disability that professional advice is sought concerning these developments. It is simply the fact that an abnormal dilatation and swelling appear around the anus that our advice is sought. In the large majority of cases these hemorrhoids occur in society and professional people given to much leisure and overfeeding. In most instances the patient confesses to prolonged sitting at stool and straining to have a movement of the bowels, or to the indulgence in laxatives of various types. The pathology of this condition is nothing more nor less than a varicosity of the external hemorrhoidal veins.

The treatment of this condition is practically a revolution in the habits of the patient. The external veins are not connected in any marked degree with the portal circulation. They are therefore not due to congestion of the liver, and hepatic stimulants and limitations of diet will have little effect upon them. The chief thing in the majority of these cases consists in establishing prompt and free evacuation of the bowels. The best method of accomplishing this is to give the patient a cold enema at a certain time, either night or morning, whichever will be most convenient for him, and by this means prevent his prolonged sitting and straining at stool. As soon as the evacuation has been accomplished, the patient should lie down upon his side with the hips elevated, and apply cold water or ice bags to the anus, thus causing the contraction of the veins. Occasionally one will find benefit from applying a salve consisting of

℞ Ung, ac. tannic,
Ung belladonnæ,
Ung. stramonii. aa ℥i
M. Sig.: Apply freely to parts at bed time.

But as a rule the prompt evacuation and cold applications will accomplish a radical cure in such cases.

Sometimes, where this type of hemorrhoid is complicated by internal hemorrhoids, an operation upon the two conditions at the same time may be admissable. The operation which I prefer in such cases is a modification of the Whitehead method, and consists in dissecting out the hemorrhoidal area of the mucous membrane, folding back a collar of skin around the margin of the anus, exposing these dilated veins, and removing them. After which the edges of skin and mucous membrane are sutured together. By this means none of the skin tissue is removed, but the varicose veins beneath it are eradicated. Electrolysis and injections have been advised in this condition, but from my experience they are very unsatisfactory and dangerous procedures.

The inflammatory external hemorrhoids consist in an inflammation of the radial folds of the anus. They are brought on by some abrasion and infection in the sulci or within the rectum. They are usually pear-shaped, the large end directed downward, and occasion the patient a great deal of pain. Spasm of the sphincter is a prominent symptom in these conditions, and yet sloughing is rarely ever seen on account of the fact that the blood supply to the hemorrhoid does not come from within the rectum, but is entirely outside, and therefore cannot be compressed by the spasmodic muscle.

The treatment of this condition may be palliative or radical. The application of ice or cold compresses is not advisable, inasmuch as it may produce sloughing. Where the time or circumstances do not admit of radical operation, one may frequently obtain relief by the application of a twenty-five per cent. solution of boroglyceride, over which should be applied a hot water bag, the patient being kept in bed with the hips elevated. After this application has been employed for four or five hours, the ointment given above may be substituted for it, and frequently the inflamed phenomena will disappear within the first twenty-four hours, and the patient be entirely relieved. When the tumors subside, there remain a thickening and hypertrophy of the radial folds which eventually resolve into a skin-tab or connective tissue hemorrhoid. When the circumstances permit, however, the most rapid and per-

fect relief can be obtained in these cases either by anesthetizing the patient or by the introduction of cocaine, and radically removing the hemorrhoids. This may be done either with the ligature or with the clamp, or the growth may be cut off with scissors and the edges sutured together. The cautery should never be employed in these cases, because burning the skin is very likely to be followed by excessive pain. My own preference is for simply crushing off the inflammatory hemorrhoids with the ordinary hemorrhoidal clamp. The objection to doing this operation under cocaine consists in the fact that it does not overcome the spasm of the sphincter, and it is very likely to be followed by the development of an anal fissure. In these minor degrees of hemorrhoids ethyl chloride is a very satisfactory anesthetic. It is preferable to nitrous oxide gas on account of its simplicity and the lack of complicated apparatus necessary for its administration.

The fourth type of external hemorrhoids consists in the connective-tissue pile or so-called skin-tab. These growths are the result of inflammatory conditions about the margin of the anus. When quiescent they occasion the patient no considerable disturbance. At times, however, they become inflamed or excoriated, and under these circumstances they are very painful. They are also annoying to the sensitive individual, in that they interfere with proper cleanliness, and sometimes with such exercises as horseback and bicycle riding. Under such circumstances they can easily be eradicated by cocainizing and snipping them off with scissors, or crushing with the ordinary hemorrhoidal clamp. The bleeding following one of these operations is so slight and so easily controlled by pressure with absorbent gauze that it need give the operator no anxiety. I am in the habit of grasping the tumor after it is cocainized with the hemorrhoidal forceps, dragging it down and crushing its base with the hemorrhoidal clamp until a firmly crushed pedicle is formed. Through the distal edge of this the hemorrhoidal edge is cut off, and the crushing acts as a sort of adhesive plaster, holding the edges of the wound together. I have frequently seen the wound heal after this operation just as perfectly as if the edges had been sutured together.

INTERNAL HEMORRHOIDS.

While various in their conformation, internal hemorrhoids may be all included under two classes, capillary and varicose. Capillary hemorrhoids consist in minute nevoid or capillary growths in the mucous membrane. They are nothing more nor less than minute blood vessels, covered over with very thin mucous membrane, which bleeds upon the slightest touch. They do not protrude during stool, they rarely occasion any pain, and yet they bleed at every fecal passage. The amount of blood lost at any individual time is not so much as may be lost in varicose hemorrhoids, but it is much more persistent, and consequently the patients are often the subjects of extreme anemia and exhaustion.

It is impossible to diagnose this condition by tactile sensations. One must absolutely see the parts in order to make out the source of bleeding. Through the speculum they appear as bright red, raspberry-like masses, limited in area and always bleeding upon the slightest touch.

The treatment of this condition consists in cauterization of the bleeding points by one means or another. Ordinarily surgeons employ nitric acid for this purpose, and it is very effectual. The objection to it consists in the fact that one cannot control the depth to which it burns or the area over which it may be spread. I much prefer the use of the Paquelin or electro cautery for this purpose. With the conical fenestrated speculum one can bring the little tumors into view, apply cocaine to their surfaces, and then in a painless manner burn them off with a nasal electrode, thus absolutely removing them and at the same time limiting the action of the cautery to the diseased area. No unnecessary amount of tissue is thus destroyed, and the bleeding is checked promptly and permanently without general anesthesia.

The varicose type of internal hemorrhoids vary more in their conformation than in their pathology. They practically consist in varicosities of the internal hemorrhoidal veins. They contain more or less connective tissue, according to the age of the individual and the length of time the piles have existed. Sometimes

they consist in isolated tumors, and at other times in a general varicosity of the entire circumference of the rectum. In their early stages they may bleed more or less profusely, and prolapse to a very slight extent. As they grow older, however, they bleed less and protrude more. It is not an uncommon experience to be consulted by patients who claim to suffer from hemorrhoids, who say while they formerly lost a great deal of blood, that this feature has ceased, and they suffer at the time from only protrusion, pain in the back and constipation.

The treatment of these conditions depends largely upon the stage in which they are seen. I am perfectly confident that the large majority of hemorrhoids could be absolutely prevented, if the patients would consult their physicians upon the first feeling of uneasiness or the first sight of blood from the anus. By the elimination of sweets and excessive starches from the diet list, by cold water enemas, instead of drastic purges, to move the bowels, by the passage of gradually increasing rectal bougies to overcome spasm of the sphincter, the development of internal hemorrhoids would be checked, if, indeed, the disease itself is not absolutely eradicated. When, however, the disease has gone on to the development of large hemorrhoidal tumors, with more or less plastic and fibrous deposit in their constitution, such treatment as this can only result in the relief of the patient, and not the cure. Under these circumstances some form of radical treatment should be undertaken. This treatment may consist in injection, in extirpation by the ligature or the clamp and cautery, or in excision with immediate suture—after the Whitehead or other methods.

A few words concerning the treatment of hemorrhoids by injection may not be amiss. There are two schools, so to speak, of "injectionists." The first believe in throwing into the tumor a considerable quantity of a strong solution of carbolic acid, so as to cause a sloughing of the growth. The second school believes in injecting into the tumor small quantities of moderately strong solutions, with a view to setting up an inflammatory induration, which will cut off a certain portion of the circulation of the growth, and thus cause its gradual atrophy. I have no sympathy

with the first method of treatment, for I believe if the tumor is to be removed and an ulceration or granulation produced, this should be done by clean surgical methods, and can be done with much greater safety than by the uncertain injection of escharotic fluids into the tumor. The second method, however, is one which deserves some confidence. In pure internal hemorrhoids, which prolapse through relaxed sphincters, and which are not ulcerated, this method of treatment will frequently give us most excellent results. The accidents and injuries attributed to it have been largely due to carelessness upon the part of the operators, faulty technique and abuse of aseptic principles. Where the operation is carried out under proper surgical precautions, the patients being prepared just as for a major operation, the tumors being brought down and cleansed surgically, and the instruments and fluids being thoroughly sterilized, there is no more danger of sepsis, abscess or sloughing in this method of treatment than there is in an ordinary hypodermic injection of morphine.

The fluid which I chiefly employ for injecting hemorrhoids consists in a modification of a formula introduced by one of your own citizens, Dr. Shuford, and after various experiments, I do not hesitate to say that it is by all odds the most satisfactory for this purpose. The formula is as follows:

℞ Ac. carbol, 3ii,
Ac. salicylici, 3ss,
Sodii biborab, 3i,
Glycerine, Price's (sterilized), ad. f. 3i.

M. Sig.: Modified Shuford's solution for injecting hemorrhoids.

The patient is prepared as stated above, and, if the tumors do not prolapse at the time of treatment, he is caused to sit over a vessel containing hot water and strain for a few moments, and thus bring them down. The growth which seems to occasion the most pain is the one selected for injection at the first sitting. The needle is introduced at the juncture of the hemorrhoid and the mucous membrane, and carried well across its base, the finger being introduced through the anus to be sure that the needle has not

penetrated the upper limits of the tumor. The fluid is then injected little by little as the needle is partially withdrawn and reinserted into different portions of the base of the tumor. The amount of the fluid employed varies from three to ten minims, the average being about five minims. The needle is left in situ for about one minute in order for the fluid to disseminate, and after it is withdrawn, a small compress of cotton soaked in alcohol is placed against the opening made in the tumor in order to prevent any excoriation from the escape of carbolic acid. After the hemorrhoids are replaced, the compress is placed upon the anus, and the patient is requested to lie quiet for one hour. After this he may go home or to his business. It is preferable that he should go home and be quiet for the next twelve hours. The bowels are confined for the first forty-eight hours; at the end of twenty-four hours, if the tumor is examined, it will be found composed of an indurated, pear-shaped swelling, well within the sphincter. This swelling increases for the first forty-eight hours, after which it gradually subsides, and eventually disappears, leaving no trace of the growth. Only one tumor should be injected at the first sitting, as patients differ very largely as to the amount of inflammatory reaction set up by one of these injections. If the individual suffers little from the first injection, at the end of one week the rest of the tumors may be thus treated at a single sitting. Ordinarily it requires a period of about six weeks to complete the treatment by this method. Thus it will be seen that, compared with the surgical methods, absolutely no time is gained, except that the patient is ordinarily able to be about his business during most of the treatment by this method. That tumors treated by injection may recur I have no doubt, but I do not believe that this recurrence is anything like so frequent as is ordinarily supposed. The cases in which the treatment has failed, so far as my experience goes, have been those which were not properly suited for it; cases with ulceration, tight sphincters, in which the tumors did not prolapse, and in which it was impossible to carry out proper antiseptic precautions. Where these conditions can be met, especially in old and feeble individuals with atheromatous or feeble hearts, all contra-

indicating surgical procedures, I believe that this method of treatment is by all means the most satisfactory.

I shall not give in detail the treatment of hemorrhoids by ligature. The Allingham and transfixion methods are well known to all physicians, and to those who have been accustomed to use them, they are entirely satisfactory. While I practically never employ these methods for reasons sufficient to myself, I frankly admit that they accomplish in a most satisfactory manner the eradication of the disease. I do not use them simply because I know a better way, one which occasions less pain, less detention from business, less hemorrhage, less complication, and better final results. By this method I refer to the clamp and cautery operation, which so many of this body have seen me perform so frequently in New York. I shall not go into a detailed description of this operation, for it is so well known to you all; I only wish to call your attention to some little practical points which are not ordinarily mentioned in the text-books.

The first of these is the necessity of catching the hemorrhoid in the line of axis of the gut. This is important first, because it assists in overcoming any tendency to prolapse of the mucous membrane of the rectum; and, second, because it avoids the production of stricture following the operation. This is easily accomplished by the use of the hemorrhoidal forceps, which greatly facilitates the operation and is useful in every class of hemorrhoids. It is introduced into the rectum closed. It is then opened over the hemorrhoid, and the latter rises into its grasp, and is then caught in the line of the axis of the gut. The growth is then dragged down, and if there be any cutaneous development this should be incised by scissors, so as to avoid grasping these sensitive portions with the clamp or burning them with the cautery. This is the second practical point in the clamp and cautery operation. The third consists in applying the hemorrhoidal clamp over the forceps with the heel on the highest portion of the growth. This is important from the fact that after the tumor is cut off it may slip from the grasp of the clamp, and if such should happen, it would be the part which is least tightly grasped by the clamp, i. e., the lower portion,

and this will always be within view, and bleeding can be controlled easily by pressure or hemostatic forceps.

The fourth point consists in the application of the cautery. The pedicle of the tumor grasped by the clamp should be charred, but it should not be burnt down into the sulcus between the blades. The first safeguard against hemorrhage in this operation consists in the crushed pedicle. If this is burnt away, then nothing more is accomplished by the clamp than if the tumor were simply burnt off without crushing. The crushing is an important hemostatic feature and the pedicle so formed should not be destroyed.

In removing the skin or cutaneous tissue around the lower end of a mixed hemorrhoid, the danger is nearly always in removing too little instead of too much tissue. Time and again have I been compelled to cocainize and cut off the stumps of these little skin-tabs, which have been incompletely removed at the time of the first operation. One should therefore cut widely and broadly in this part of the operation. Practically there is no after treatment in these cases. The parts are dusted over with orthoform, the patient is usually given a hypodermic of morphine before he recovers from the anesthetic, and a soft compress of sterilized gauze is placed over the anus and held in position by a T-bandage. Catheterization is never employed, except under the most urgent circumstances. The patient is always encouraged to urinate voluntarily, either by the application of hot cloths, or by placing him upon his feet or setting him upon the commode, even if it is necessary within the first three or four hours after the operation. Of course there are cases in which it becomes necessary, but in the past five years less than one in ten of my patients have ever been catheterized following this operation.

The excision of hemorrhoids with immediate suture is not a new operation, but it has been brought prominently into view within recent years under the name of Whitehead's method. This method consists in dissecting out the hemorrhoid-bearing area of the mucous membrane, amputating it above the varicose veins, and resuturing the membrane to the muco-cutaneous border of the anus. The operation as first advised by Mr. Whitehead was tedi-

ous, bloody and difficult to many in its performance. I have seen one prominent surgeon in New York devote over two hours to this operation, and during it there was a perfect forest of hemostatic forceps surrounding the anus. Indeed, I do not think I ever saw as many artery forceps attached to one individual in all my surgical experience. These difficulties and the fact that the operation depends for its success upon primary union of the cut edges, have rendered the method somewhat unpopular in the United States. The earlier criticisms were devoted to the dangers of hemorrhage, sepsis, retraction of the mucous membrane, sloughing and stricture, and no doubt many of the attempts to do this operation by men inexperienced in rectal surgery resulted in these accidents. I have seen myself no less than ten strictures of the rectum following so-called Whitehead operations, but in all justice to Mr. Whitehead, I am compelled to say that most of these were done after a method far from his own. Recently I have had to repair the anus in one of these cases in which the skin was dissected away for three-quarters of an inch around its margin, and a true ectropion recti was developed. The operator claimed to have done a Whitehead operation, but Mr. Whitehead has insisted above all things in these operations that no portion of the skin should be removed. The fact that the operation requires primary union for its most perfect success cannot be denied, but it is not a fact that if one or two sutures surrounding the anus give way, the whole operation is a failure. I have time and again seen these cases in which small areas of granulation developed, where one or two sutures failed to heal, and yet most excellent results followed.

As to stricture, I am of the opinion that this results not so much from imperfect union of the edges of the wound as it does from taking away too much of the mucous membrane and thus necessitating a sort of plaiting or folding in of the walls of the gut when this is dragged down to unite it with the muco-cutaneous border. This folding in causes a thickening and adhesion of the parts, a sort of collar, as it were, around the lower end of the rectum, in which new inflammatory material multiplies and causes a sort of fibrous ring or stricture at this point. The same condition has

been seen to follow where large areas of mucous membrane have been taken off in attempts to overcome prolapse of the rectum by this method. Inaccuracy and unfamiliarity with the principles and practice of this method are, in my opinion, the causes of most of the accidents following it. As to the time required in its performance and technique, these can be much improved by a little variation in detail.

The operation which I have been requested to come to Texas and explain is a combination of suggestions derived from my surgical confreres. For some of them I do not know to whom to accord the credit. For instance, the fact that the mucous membrane of the rectum, together with its varicosities, can be peeled off from above downward much more easily than from below upward, was suggested to me many years ago, I think, by Dr. Parker, in the University of Pennsylvania. I afterwards heard it mentioned by Dr. Weir, but it was a fact quite familiar to me at that time. The operation, as I employ it, is as follows:

The patient having been prepared as for all aseptic operations, should be placed in the lithotomy position, with the hips somewhat elevated. The two lateral hemorrhoids are caught upon either side of the posterior commissure of the rectum, and dragged down. An incision is made through the cutaneous border, and a blunt curved scissors carried upward between the mucous membrane and the muscular wall of the gut to the height of the internal sphincter. It is then worked laterally around the intestine, separating the mucous membrane from the muscular wall at this height, and from this point downward, either with the finger introduced through the wound, or by the aid of the scissors, the hemorrhoids are peeled out of their beds upon the muscular wall until the margin of the anus is reached. This being done upon either side, it is an easy matter to cut the cylinder thus loosened from its attachment in the muco-cutaneous border. There is usually very little bleeding at this point, and what is may be easily controlled by applying a clamp with a somewhat elongated bite circularly around the flap. The mucous membrane is then dragged down until healthy tissue is reached, and the first suture is applied upon one

side of the posterior commissure, attaching the mucous membrane to the cutaneous border. Little by little the mucous cylinder is then amputated, sutures being placed as rapidly as the tissue is cut. These sutures serve not only to attach the mucous membrane, but also to control bleeding. I have been in the habit of dividing this suture into two portions in order to prevent puckering the rectum, as with a purse string. Recently, however, it has seemed to me better to divide it even into four portions, as occasionally the anus seemed a little more contracted than I would like. No ligatures and no twisting of the arteries (and no hemorrhage of any consequence), have ever been employed in this operation. Up to this period I have performed it upwards of two hundred and sixty times. In this number I have had one stricture at the site of the operation, and I have seen a stricture one year after the operation two inches above the field. This latter stricture I can in no way account for. For the first, however, there is an easy explanation. The house surgeon of the hospital, not having been present at the operation, supposed than an ordinary clamp and cautery operation had been done. Noticing a little more oozing than usual in this operation, and not wishing to be disturbed at night, he calmly proceeded to pack the rectum without introducing a speculum. As may be supposed, this packing with dry gauze tore the mucous membrane loose and carried it as a folded mucous cuff upward into the rectum. The result of this was considerable bleeding, the collapse of the patient, and I was called to him to examine for a concealed hemorrhage. The concealed hemorrhage was coming from the mucous membrane, which had been carried up in front of the gauze, and was in no wise compressed by it. The patient was reanesthetized, the bowel washed out, and the mucous membrane sewed back in position. It did not unite, however, infection having taken place, and an ugly stricture followed. The operation can hardly be credited with this stricture. The disinclination of my house-surgeon to be disturbed at night was undoubtedly responsible for it.

In a general way, however, I do not believe that this operation should be undertaken by those who operate only now and then. It requires familiarity with the anatomy of the rectum. I have actu-

ally seen the entire sphincter taken out in attempting it. It needs manual dexterity and good assistants to perform it satisfactorily. The length of time which it consumes in expert varies from nine to twenty minutes, never more than the latter, the average being about twelve minutes.

The patient is dressed with a small drainage tube surrounded by gauze, and a rubber capsule is passed into the rectum and held there by a compress of soft gauze and a T-bandage. This is left in position for four days, and usually occasions no inconvenience. After this it may be removed, and at the end of five days the patient's bowels are opened either by enemata or mild laxatives. In seven days the parts are ordinarily found to be united in all of their extent, and the patient can be safely allowed to get out of bed and walk around his room. Frequently I have had patients leave the hospital at the end of the first week and go to their work without any inconvenience. There is no great advantage in this operation with regard to the amount of pain which the patient suffers over the clamp and cautery, but so far as the final healing of the parts is concerned, it certainly saves from two to four weeks over either the clamp or the ligature.

In certain cases, in which there are isolated hemorrhoidal masses, I have recently adopted a modification of this method, which consists in the application of Earle's forceps to the hemorrhoids, and suturing over them. The hemorrhoid is grasped and dragged down just as for the cautery operation. In the fold attaching it to the gut above one feels for and finds the artery supplying the tumors. A needle threaded with plain sterilized catgut is passed underneath this artery and tied, thus controlling the blood supply of the hemorrhoid. The long end of the thread attached to the needle is not cut off. The Earle clamp is then applied beneath the hemorrhoidal forceps, the tumor is cut off above, and the suture is carried around and around, this clamp passing through two layers of the mucous membrane grasped by it until the entire wound is sutured. After the sutures are thus introduced, the clamp is loosened and withdrawn and the loops tightened, thus absolutely bring-

ing together the edges of mucous membrane and eradicating the hemorrhoidal growth.

I have performed this operation something more than fifty times, and at first glance it appears the ideal procedure. In one case I have noticed great spasm of the sphincter and a fibrous band surrounding the rectum just below the point at which the artery was tied. Whether this accident is likely to occur in many of the cases, or whether it shall prove a permanent disability or discomfort to the patient, I am not prepared to say, but I cannot report or advocate this operation or any other without frankly stating all accidents and complications which I have seen occur, or which it appears to me may do so. Theoretically, this operation and the Whitehead method seem to cover the ground of hemorrhoids in an ideal way, but practically their technique involves a capacity in the surgeon which is not met in every hamlet, and each possesses potentialities for evil in inexperienced hands which cannot be ignored.

On the whole, therefore, it is my practice to teach students who do not intend to make a specialty of rectal surgery, that it is their duty to avoid these operations and confine themselves to that simple, easy, safe and most efficient method, the clamp and cautery, in the operative treatment of hemorrhoids.

PUERPERAL FEVERS—FROM A SURGEON'S STANDPOINT.

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In the modern hospital puerperal fever is now practically unknown; the once frightful mortality has been reduced to zero by the application of surgical principles to obstetric practice. From hospital experience we have learned (*a*) that normal labor and normal puerperium are attended by normal temperature; (*b*) that "autoinfection" is impossible—or practically so; (*c*) that "milk-fever" is a myth; (*d*) that any rise of temperature above 99 degrees F. generally means infection; and (*e*) that infection depends upon some fault of the doctor or nurse. Among country doctors and also in the work of city practitioners not thoroughly familiar with the aseptic technic, puerperal infections are still almost as common as in pre-antiseptic days; and with midwives the mortality is something appalling. This must continue until every accoucheur learns that *the confined woman is a wounded woman,* and treats her with the same attention to surgical cleanliness as if the peritoneum were to be opened.

CAUSES OF HIGH MORTALITY.

The persistence of puerperal infections in spite of the fact that we know them to be preventable may be ascribed to—

I. Non-familiarity with the various causes;
II. Inappreciation of the term "asepsis";
III. Gross carelessness;
IV. Meddlesome interference with a natural process;
V. Spread of venereal diseases.

I. NON-FAMILIARITY WITH VARIOUS CAUSES.

We have now reached a point in our knowledge of the pathology of the puerperal state when it is possible to differentiate—clinically as well as theoretically—between the various forms of infection. The broad terms "puerperal fever," "puerperal sepsis," "puerperal peritonitis," etc., must be discarded,—they are but relics of the pathology of yesterday. We must be more definite—not merely to be scientific in our methods, but because the severity of the attack, the prognosis, and the proper selection of therapeutic measures (medical as well as surgical) must depend entirely upon the character of the poison producing the fever. Unfortunately our knowledge is not yet sufficiently broad to enable us to make a differential diagnosis in every case; but in most instances it is possible to determine the precise cause and intelligently apply the proper treatment. To do this requires a thorough comprehension of the pathology of acute infections of the genital tract: a working knowledge of practically all of the pyogenic bacteria—their natural history, period of development and the clinical phenomena they may produce.

The normal vulva constantly contains myriads of bacteria, pathogenic as well as innocent, which may be easily introduced into wounds of the genital tract by careless methods.

The normal vagina of the pregnant woman does not contain any of the pyogenic micro-organisms—hence the impossibility of "auto-infection" of the pelvic organs in natural labor.

The vagina contains innumerable forms of non-infective bacteria normally, but these disappear at the cervix—no microbes ever being found in the cavity of the uterus under natural conditions.

The secretions of the cervix uteri, as well—in less degree—as those of the vagina, possess mild antiseptic power, so that unless an unusually large number of virulent organisms be introduced no severe infection is apt to occur.

Those micro-organisms which give rise to acute infections of the genital tract must of necessity be introduced from a dirty vulva or by unclean fingers or instruments; and the path the poison follows may be—

(1) Through a wound of the perineum;
(2) Through a tear of the vagina;
(3) Through a lacerated cervix;
(4) Through the uterine sinuses; or
(5) Even through the Fallopian tubes—as by introduction of a dirty hand for extraction of placenta.

The pyogenic organism, being thus implanted, may give rise to merely local wound infection, to a severe localized inflammation, or to a rapidly fatal sepsis—the result depending chiefly upon the character of the particular bacterium at fault.

VARIETIES.

1. Saprophytic infection.
2. Streptococcus infection.
3. Bacillus coli communis infection.
4. Staphylococcus infection.
5. Gonococcus infection.
6. Pfeiffer bacillus infection.
7. Klebs-Loeffler bacillus infection.
8. Infection with vibrion septique Pasteur.
9. Pneumococcus infection.
10. Mixed infection.

1. SAPROPHYTIC INFECTION ("SAPREMIA").

The most common, the most dangerous, the most easily cured infection of the lying-in period is of saprophytic origin. While the vagina of the normal woman contains none of the pyogenic bacteria, it often swarms with saprophytes (germs of putrefaction, or decomposition), which no amount of preliminary douching will destroy. Under ordinary conditions these germs are non-pathogenic, but when a piece of placenta is left in the cervix or uterus, when large blood-clots remain in the uterine cavity, or when drainage of even the natural discharge of blood is interfered with, putrefaction begins. Frequently the womb is able to expel the foul, stinking mass and the worst that then happens is an offensive

lochial discharge, with a slight rise of temperature. In other instances nature is not able to care for the patient, and an illness of intense severity arises.

Everything apparently goes well for thirty-six to forty-eight hours after labor, when the patient becomes somewhat restless, with slight elevation of temperature. In a few hours there may be a sharp chill (but the initial rigor is very often absent), followed by a sudden rise of temperature to 104 or 105, with much swelling of the abdomen and tenderness; and the inexperienced doctor regards the case as one of "peritonitis." Examination of the vaginal discharge, however, immediately shows the character of the trouble—the stinking discharge alone is sufficient to assure the attendant that the entire trouble is dependent upon retention of rotting material.

If the woman be seen at this stage and promptly treated, the condition is not usually a serious one; but delay means death.

When one is called to a case of "puerperal sepsis" the first point to determine is whether the condition is sapremia or septicemia—to use the phraseology of the nineteenth century. It being decided that the fever is due to saprophytic infection, *i. e.*, bacteria of decomposition working in retained debris, there is but one thing to do—clean out the uterus and vagina thoroughly, and at once. From the always well-dilated os the stinking, putrid mass may be removed by the fingers, a dull curette or a large Volkmann's spoon. Chloroform should invariably be given so that if necessary the entire hand may be introduced to determine that every trace of decaying material is removed. The uterus should not be "curetted"—especially with the sharp curette—there is nothing wrong with the endometrium.

For irrigation formalin solution, one-half of one per cent., will be found cheap and effective.

A typical case of this degree of infection is the following:

Illustrative Case.

Mrs. A., patient of Dr. W. M. Dunn, of St. Louis, aged thirty, second pregnancy, was perfectly comfortable until thirty-six hours

after the fetus was expelled, when she had a slight elevation of temperature; a few hours later there was a hard chill, followed by a temperature of 106. She was admitted to the Woman's Hospital with distended abdomen, putrid discharge from the vagina, temperature 106½, but skin cold and "clammy," slight delirium, heart intermittent and weak. Examination showed the os well dilated, but a fragment of placenta and some remnants of membranes hanging in the cervix. (In justice to Dr. Dunn, it must be said he was not in attendance until a few hours before her admission to the hospital, and therefore was not responsible for her condition —the accoucheur being a "professor" in a St. Louis medical college.) Removal of the putrescent mass with copious irrigations of mildly carbolized hot water immediately relieved the condition and restored the woman to a practically normal puerperium. In this instance it was possible to remove the offensive material with the fingers and a strong current of hot water.

When the patient is not treated at all, or is improperly managed, the disease usually progresses rapidly until death closes the scene.

A typical case of this kind is the following:

Illustrative Case.

Mrs. R., patient of Dr. H. G. Nicks, of St. Louis, was admitted to the Woman's Hospital December 9, 1901, suffering from puerperal sapremia. She had been delivered by an eminent practitioner of St. Louis, who unfortunately left some placental fragments and membranes in the uterus of a woman of extremely filthy habits. Saprophytic infection promptly followed, and he, mistaking the indications for treatment, instead of carefully cleaning the vulva and vagina and then simply removing the putrefying mass with a spoon or dull curette or fingers, chloroformed the patient and energetically "scraped out" the uterus with a sharp curette. While the decomposing material was greatly diminished by this procedure, there was much outpouring of blood, which in turn became retained and infected with the bacteria of putrefaction. The fever therefore continued at 105, delirium ensued, diarrhea followed, the skin became cold and clammy—and Dr. Nicks was called. But it was

too late—the venous sinuses, reopened by the use of an improper instrument, allowed the system to become overwhelmed with the saprophytic poison, and she died, showing a life sacrificed by the fact that a busy practitioner did not recognize saprophytic infection and treat it according to surgical principles.

Packing the uterus in such cases, after emptying it, is improper —a simple gauze drain through the os being sufficient.

In ordinary cases repetition of the irrigation is not advisable. The possibility of engrafting a streptococcus or staphylococcus infection upon the already weakened parts is a greater danger than leaving some little decaying matter in the uterus. On account of this menace to life, too, the utmost care must be maintained during operative procedures—as strict asepsis should be maintained for a curettment as for an abdominal section—the simple existence of a stinking discharge is no excuse for dirty surgical procedures. If the temperature again rise after the fall which always follows emptying and irrigating the uterus and vagina, one intra-uterine douche is advisable; invariably to be given by doctor and not by nurse.

A second curettage is rarely permissable, especially if the first has been perfect, unless a secondary infection with pyogenic organisms occurs.

2. STREPTOCOCCUS INFECTION.

Next to puerperal sapremia, streptococcus infection is the most frequent of the septic fevers of childbed. Germs of erysipelas are everywhere, notably under the fingernails of doctors! The physician who attends scarlet fever, erysipelas, diphtheria, carbuncle and other infective diseases in which the streptococcus plays an important, if not a causative, rôle is almost certain to infect his patients if he attends confinements without taking the most extraordinary precautions as to hand disinfection. (This fact was indeed known, clinically, long before we learned of the existence of the streptococcus—just as was also that dissection of dead bodies by an obstetrician would cause "childbed fever" before we found that sapro-

phytes are the cause of decomposition—as well as the most virulent form of puerperal infection.)

Streptococcus infection usually occurs through a torn perineum or lacerated cervix; occasionally through the uterine tissues primarily. As this germ is one which does not readily give rise to extensive suppuration, we can readily understand how it happens to result in huge inflammatory exudates in the pelvis—the uterus, tubes and ovaries often becoming welded into a solid mass from the pelvic peritonitis and pelvic cellulitis, without the formation of an abscess in either the tubes or the cellular tissue. Later on, it is true, if "resolution" does not occur and particularly if a mixed infection (with staphylococcus or bacillus coli communis) arise, pus may form either as pyosalpinx or abscess of the broad ligament, or both.

There are three grades of fever which may follow streptococcus infection.

(*a*) In the first there is a mild erysipelatous inflammation of the perineum near and involving its wound, which does not differ materially from facial or other mild forms of erysipelas. If the infection be recognized early and properly handled (particularly in the matter of refraining from douching or other manipulation which inclines to introduction of the germs to the internal parts), it may amount to but little.

Probably the best treatment of this slight degree of infection is to paint all of the inflamed surfaces and about one inch of healthy tissues with ninety-five per cent. carbolic acid, followed immediately by pure alcohol, and the application of a ten per cent. ichthyol ointment.

The usual course of this variety is illustrated by this case:

Illustrative Case.

L. J., patient of Dr. Geo. Howard Thompson, was delivered at the Woman's Hospital. There was complete laceration of the perineum, necessitating immediate suturing. By imperfect preparation on my part, or possibly by reason of the rectal tear, strepto-

coccus infection of the perineal wound occurred. On the fifth day there was a slight rigor with a succeeding temperature of 101½, with much pain at the line of sutures. Examination of the wound showed a mild erysipelatous blush, which next day presented the characteristic appearance of erysipelas as seen elsewhere in the body. As there was no evidence of pelvic complications, and the fever did not go above 103½, the uterus was not examined or treated. Bichloride (1-1000) douches of the ostium vaginæ and the external application of carbolized gauze (1 to 20) constituted the sole treatment, under which the disease ran a mild course and terminated favorably by the end of the fifteenth day. The uterine and vaginal discharges were, in this case, able to take care of the internal genital organs, so that the woman is in excellent health, save for a perineum imperfectly united.

Here was a case in which active surgical treatment would have resulted disastrously. Had repeated examinations been made, had vaginal douches been given, had intra-uterine medication or curettage been attempted, there is no doubt but that acute pelvic peritonitis, if not worse, would have followed. Good results came from judicious non-interference.

(*b*) Unfortunately such slight attacks are rare, and are limited to perineal infection. When the streptococci have been introduced directly into the uterine tissues through (1) a lacerated cervix, or (2) the wounded endometrium, there it set up a metritis and pelvic peritonitis.

For about a week after labor the patient seems to be doing fairly well. On the sixth to ninth day there is a chill, followed by a temperature of 101 to 103, with much pain in the pelvis, some distension of the abdomen and other evidences of a mild form of pelvic peritonitis. As the disease progresses it becomes apparent that the fimbriated extremities of the Fallopian tubes have become clubbed and perhaps buried in some pelvic exudate; that the uterus is fixed in the inflammatory deposit; that the sepsis is gradually disappearing under mild saline laxatives, just enough codeine to allay the pain, and hot vaginal douches; and that recovery from the acute attack will occur without pus formation.

But the "recovery" is apparent rather than real. These are the cases which fill our hospitals and sanitaria, and which give such brilliant results in the hands of our great abdominal surgeons—brilliant so far as mortality is concerned; often dubious enough so far as the happiness of the patient is involved, if she be a woman with the true mother instinct.

This is the mild type of pelvic infection so common following criminal abortion. To it and sterility due to gonococcal salpingitis may be ascribed the present decadence of the French nation, and to these may be traced the already alarming decrease in the birth-rate of American-born women. The future of America truly depends upon the hand-cleanliness of the obstetrician of today as well as upon such moral training of our girls as will abolish criminal abortion.

A case typical of this form of streptococcic infection is the following:

Illustrative Case.

Mrs. C., patient of Dr. J. T. Walsh, developed fever on the ninth day after confinement, but the temperature did not go above 102, nor was there much abdominal distension. Pain in the pelvis was severe for four or five days, but gradually disappeared under perfect rest, hot douches, enemata and mild salines. At the end of the third week after labor, there was still mild general sepsis, with the uterus fixed in inflammatory deposits; but instead of abscess formation there was gradual absorption of the exudate and recovery of a fair degree of health part of the time. One year later the woman was still a semi-invalid, and pelvic examination shows both tubes and ovaries fixed in the bottom of Douglas's cul-de-sac, chronically inflamed, tender, enlarged. Perpetual sterility and ill health are before her unless she submit to pelvic section.

(*c*) In the most severe type of streptococcus infection the beginning is much the same as in the milder form: a fairly smooth period of five to nine days after delivery, then a chill, followed by a fever of 103 to 104; next day another chill, succeeded by a temperature of 104 or 105, with profuse sweating afterward—in other

words, the typical course of a profound streptococcus septicemia plus the local signs of pelvic peritonitis, vaginal examination showing the uterus, tubes and ovaries to be soon imbedded in a mass of inflammatory deposit, the formation of which is accompanied by much pelvic pain, abdominal distension and extreme suffering.

Very frequently the streptococcus septicemia runs an extremely rapid course, terminating in death within two or three days after the initial chill—notably true of women delivered while suffering from scarlet fever or erysipelas. In other cases a general peritonitis follows the local infection, and death occurs from three to six days after the onset of the attack. Fortunately, a large proportion of women have the strength to survive; in which cases the fever gradually subsides and the local conditions slowly improve, unless pus form, when the woman has the usual history of the formation of pelvic abscess with ultimate death from chronic sepsis if the pus pockets be not emptied, either naturally or surgically.

An illustrative case is the following:

Illustrative Case.

Mrs. P. L., patient of Dr. J. C. Sullivan, of Cairo, Ill., was delivered by a midwife. Everything seemed to go well until the seventh day, when a severe chill occurred, followed by a temperature of 103½. Next day another chill was succeeded by a fever of 104½, and the next day the register was 105. On the fifth day of the fever the doctor made vaginal examination and found the uterus fixed in a mass of exudate. Rightly divining that curettage would be worse than useless, and that the only hope of a favorable termination lay in supportive treatment and local measures calculated to cause absorption of the exudate, Dr. Sullivan used quinine and strychnine internally and hot douches thrice daily with ichthyol and glycerine tampons at night. Gradually the fever subsided, and a slow convalescence seemed established, when a hard chill and high fever, followed by sweating, foul tongue, mawkish breath and other evidences of sepsis, showed that pus had formed and needed operative measures. On admission to the hospital at the end of

the sixth week, the pelvis was found completely filled with exudate, the uterus was immovable, deep fluctuation could be detected in each broad ligament and pyosalpinx was suspected in addition to the abscesses of the connective tissue around the uterus. The os was gently dilated, and the uterus irrigated with lysol solution; the abscess cavities were opened and the thin, ichorous pus allowed to escape; the pus pockets were gently curetted and packed with iodoform gauze; but the Fallopian tubes could not be reached from below. Three weeks later, the general condition having greatly improved, the two suppurating tubes and the uterus were removed by abdominal section, and the patient made a slow but perfect recovery.

Here was a case in which, had a bacteriological examination of the uterine discharge revealed nothing but a pure streptococcus infection at the time of highest fever, Marmorek's antistreptococcus serum might possibly have been of benefit; but I must confess that thus far I have been disappointed in its use in streptococcus septicemia.

Intravenous injection of normal saline solution proves beneficial in a small percentage of cases.

The chief indications are, however, supportive measures of the strongest kind (whisky, strychnine, forced feeding, etc.), non-interference with the endometrium, local antiseptic treatment (douches and tampons) and opening of pus pockets as soon as they can be detected—either above or below.

3. BACILLUS COLI COMMUNIS INFECTION.

This microbe inhabits the large intestine, and plays an important part in the production of appendicitis, suppuration of ovarian cysts, etc. The proximity of the anus to the vagina renders contamination of perineal wounds and lochial discharges easy. Considering the carelessness of women and nurses in their mode of cleaning the rectal outlet it is small wonder that mild puerperal infection is common.

Enough cases known to be distinctly of this type of fever have

not been seen to permit a description of the characteristic clinical history; but the following case-record will show what I believe to be the chief symptoms:

Illustrative Case.

Two hours after delivery I was called to sew the perineum of a primapara in previous good health. The tear extended to the anal margin. There was also an extensive laceration of the left side of the cervix, which I did not attempt to repair. She had been attended by a competent man, who had used every necessary antiseptic precaution. But in transferring her from the table to her bed her bowels moved, and by a semi-conscious movement of her hand the patient smeared wound and vulva with fecal matter. The greatest care was used to again disinfect the parts, but an acute inflammation with intense suffering necessitated removal of the sutures on the fifth day. The cervical wound became infected, and a thin, purulent discharge followed. At no time did the body of the uterus become implicated in the inflammatory process, nor did the temperature of the patient rise above 101½ (a characteristic feature of bacillus coli communis infection is the comparatively low temperature); but an abscess formed to the left of the uterus, in the loose connective tissue, which had to be widely opened and loosely packed with gauze. Bacteriological examination of this pus, as well as the discharge from the cervix, showed colon bacilli and a few undifferentiated staphylococci; that from the perineal wound gave bacillus coli communis, with staphylococcus; epidermidis albus in large numbers also.

Many of the mild puerperal fevers, hitherto regarded as light septicemia, will in future, I believe, be classed as bacillus coli communis infections.

4. STAPHYLOCOCCUS INFECTION.

When it is remembered that the various forms of staphylococci are found everywhere—in air, and dust, on all cutaneous and most mucous surfaces—it is astonishing that infection with this germ is

not more common in the puerperal state. That its tendency is to produce a purely local suppuration (the staphylococcus pyogenes aureus being the particular germ of the "laudable pus" of our medical ancestors) rather than general infection is the probable explanation. When general infection with it does occur the course is about as follows:

Illustrative Case.

Mrs. B., patient of Dr. W. H. Townsend, of Bismarck, Mo., was confined with her first child without chloroform or forceps; labor normal, with slight tear of the perineum. She had a suppurating sore of the finger, and, in spite of the doctor's warning, would change her gauze pads. On the third day there was a slight chill, with temperature of 102 afterward, and two or three days later suppuration of the perineal wound was noted. The fever continuing, an eminent teacher of obstetrics was called, and although the uterus was not fixed nor greatly enlarged or tender, on account of the continued fever (100 at morning, 101 at night), he curetted—without obtaining anything but blood. There was a chill soon afterward, followed by much pain in and above the uterus; with higher fever. Irregular chills, fever, night-sweats, etc., succeeded. Three weeks later an abscess could be made out to the left of the midline above Poupart's ligament. Under chloroform I opened this and evacuated a quart or more of staphylococcus pus, gently curetted the abscess walls and stuffed with gauze. Good and speedy recovery has followed. Examination of the pelvis under anesthesia showed the uterus to be freely movable, and no larger than normal at that period after labor.

Here was a case in which the folly of curettage of the uterus in some forms of "puerperal fever" is apparent. The temptation to "do something" (for a fee) in the way of operation should be resisted to the limit of simply following the plain indications only.

5. GONOCOCCUS INFECTION.

In cities, where gonorrhea is so common, puerperal infection due to Neisser's coccus is, in my opinion, next in frequency to that

caused by the streptococcus; and it is far more common in country practice than generally believed.

The symptoms are not so acute as in sapremia or streptococcic septicemia, but are sufficiently severe to be alarming. The course of the disease does not differ materially from gonorrheal pelvic peritonitis in the non-puerperal woman, except in the intensity of the initial chill and fever.

Illustrative Case.

I. C., patient of Dr. G. H. Thompson, contracted gonorrhea some weeks before an abortion. Three days after abortion (produced by a female doctor) chill, fever and abdominal tenderness developed. Next day Dr. Thompson found temperature 101, pelvic peritonitis developing, uterus enlarged and tender. Curettage and drainage did not improve her condition, so she was admitted to the Woman's Hospital. For three weeks the peritonitis ran a mild course under the use of salol and codeine, with mild laxatives and douches of hot water twice daily; the temperature gradually dropping from 101 to 99. Then a sudden chill and a rise of fever to 104½, with intense abdominal pain, seemed to call for immediate abdominal section. On opening the abdomen it was found that an acute gonorrheal pyosalpinx had ruptured and general peritonitis resulted. The abscesses were removed and the pelvis cleaned and drained, but death from acute sepsis followed in thirty-six hours.

This is the typical history of this form of infection, up to the time of rupture of the pus tube. Usually the patient lapses into chronic invalidism until she falls into the hands of a surgeon who recognizes the condition and either kills or cures, according to his particular skill. Most of the patients recover perfect health after thorough operation.

6. PFEIFFER BACILLUS INFECTION.

When we consider the general prevalence of la grippe and the now well-known tendency of the Pfeiffer bacillus to produce pus

under favorable circumstances, we may well be surprised at the probable infrequency of puerperal infections due to this microbe.

Illustrative Case.

Mrs. S., known to be suffering from la grippe at the time of her expected confinement, was admitted to the Woman's Hospital for accouchment. On account of her bad condition every precaution was taken; she was confined on a glass table in the surgical operating room, under chloroform anesthesia, with forceps, with the same care as if an abdominal section were being made; but, of course, on account of the necessity for frequent changes of the bichloride dressings over the vulva there was more or less exposure of the perineum, which was lacerated to the extent that four sutures were needed. Everything went well until the seventh day, when the nurse reported the perineal wound "irritated." Examination showed it to be infected by some germ; there was a thin, irritating pus around each stitch and in the wound. On the ninth day (the general grippal symptoms having all disappeared, and the friends expecting the woman to sit up the next day), there was an unexpected rigor, the temperature shot up to 107½, and dissolution seemed imminent. Within two hours she was anesthized and the uterus dilated and gently curetted—the high temperature seeming to indicate delayed sapremia—but nothing was found excepting the same thin, pale pus which covered the perineum. The perineal sutures were cut, and the wound (which showed no tendency to unite and was covered with a diphtheritic-looking "membrane") allowed to gape. Examination of the pus from both perineum and uterus showed nothing but pure Pfeiffer bacilli present. Next day the temperature dropped to 96½, and again rose to 107, when ten grains of acetanilid, with one ounce of whisky were given, with a cool sponge-bath. Antiseptic douches were given every six hours, with an intra-uterine irrigation on two occasions, a strand of gauze being carried through the os each time for drainage. Large quantities of strychnine and milk punch were given by mouth. For six days the temperature varied from 97 to 106, and then gradual con-

valescence occurred, with full restoration to health. At no time was there any uterine fixation or tenderness, tubal enlargement or sign of peritonitis.

7, 8, 9. OTHER FORMS.

The three other distinct forms of puerperal sepsis are so rare that I pass them without special reference. I have seen but one case of pure Klebs-Loeffler infection in a perineal wound, and neither of the other two.

10. MIXED INFECTION.

Mixed infection is very common, especially staphylococcus with streptococcus, and streptococcus or staphylococcus with gonococcus. It simply adds seriousness to the situation, and calls for more care in dealing with any form of puerperal infection.

II. INAPPRECIATION OF TRUE MEANING OF "ASEPSIS."

A great many physicians, especially those who graduated before the adoption of laboratory teaching in our medical schools, do not appreciate the ease with which a wounded surface may become infected by these minute forms of plant-life, and hence do not realize the true meaning of the word "asepsis," nor comprehend exactly what is meant by the term "sterilize." They have "caught on" to the extent that they use these words with a glibness which would almost deceive, but there are thousands of men who, when they attempt to put into practical application that which they have heard about "hand sterilization," content themselves by merely washing the hands with soap and water for a few minutes, and then mechanically dipping them into bichloride solution of uncertain strength, declaring then that their hands (which may but a short time before have been in contact with diphtheritic, scarlatinal or erysipelatous patients) are "aseptic"! These men believe they have fulfilled all the requirements of modern obstetrics if they wash the patient's vulva with soap and water, dash a little of some antiseptic fluid on it, and proceed to deliver on a dirty old sheet, after putting their "sterilized" hands into some pocket for a chew of

tobacco. These are the men who are filling our cemeteries with professionally murdered women; who are keeping our hospitals filled with patients for abdominal and pelvic surgery. *Of the more than 2000 peritoneal sections I have now made, I believe more than one-third could be traced to careless methods of physicians!* They did the best they knew, you exclaim? Undoubtedly; but this is an age in which doctors should know better, and knowing, do better. When we consider that practically every case of puerperal infection is preventable, the present condition of affairs is truly disgraceful to our profession, both teachers and practitioners; the one for failure to instruct properly, the other for failing to learn and act properly.

The excuse that women, especially in country practice, will not permit thorough cleaning of the external genitals is not a good one; most of them will if the necessity be explained to them; if not, the woman herself must be instructed how to clean herself as well as possible. But the chief fault usually lies with the doctor himself: too many vaginal examinations with improperly prepared hands; filth beneath the finger nails annually kills more people than does typhoid fever!

A large proportion of cases arises from the introduction of unboiled obstetric forceps through an uncleaned vulvar orifice, and in instrumental delivery there can be no excuse for either.

How to Sterilize the Hands.

For common obstetric work the hands should be prepared thus: They should be energetically scrubbed for at least five minutes with soap and water (hot, if possible) and a stiff brush; then dried, and the nails trimmed down to "the quick"; then washed in turpentine for half a minute or more; then scrubbed for another five minutes, with particular attention to the spaces under the end and around the base of the nails; then rinsed freely in alcohol, and finally immersed in 1-2000 bichloride solution. When thus prepared, the hands may be considered fairly safe for introduction into a vagina which is soon to be bruised and wounded, provided they do not

touch chair, bed clothes, stockings or anus of the patient on the way thereto.

When it is likely that the hand must be introduced into the uterus (as for version or extraction of placental tissue) they must be washed in saturated solution of potassium permanganate until very brown; decolorized with strong solution of oxalic acid, and rinsed in bichloride solution, after the same careful scrubbing. The same process should be followed if an infectious case of any kind has been lately seen, or an abscess lanced, or a decaying tooth pulled, or an infected wound dressed. Anything short of this mode of hand-preparation is criminal negligence.

Wearing of rubber gloves is a poor substitute, which may be employed in emergencies.

If the patient will permit, the vulva and pubes should be shaved, scrubbed and sterilized in the same manner as the hands; if not, the parts should be rendered as nearly sterile as possible by scrubbing and the application of antiseptic solutions.

No attempt should be made to scrub or even douche the vagina unless it is known to be already infected.

III. GROSS CARELESSNESS.

Inattention to these details by those who know constitutes gross carelessness. Many men become careless through extensive, laborious practice, and an ever-growing confidence in the powers of nature to care for her own; in perhaps 999 cases of labor the natural process can be depended upon, but the 1000th case (or the very first) may be the one to add gray hairs to the head of the conscientious man who realizes that his inattention to the necessary details of surgical cleanness has cost a human life. No man ought to become so busy that he can not practice in a thoroughly scientific manner; and this is especially applicable to obstetric work.

But more often, perhaps, the carelessness lies in neglecting to see that the mother is properly cared for during the first twenty-four hours following labor; after the lochial discharge is well established the downward drainage and glazing of wounded surfaces will

most likely protect the patient, but for the first day or two there is much danger of post-partum infection. Five yards of bichloride gauze cost but half a dollar, and may save a life if used to protect the vulva, instead of "any old cloth" usually employed.

The ordering of vaginal douches to be given by incompetent attendants is another piece of gross carelessness; if the conditions are such as to demand the use of a douche at all within the first two days they are serious enough to require the doctor to give it himself. It is rarely needed.

Most careless of all is the inattention paid to tears of the perineum. If the woman be in a clean bed, be carefully confined, and receive good attention after delivery, there is no great danger in a small wound of the perineum; but if she be in bad surroundings, and if her after-care is not to be ideal, every tear, however small, should be at once repaired, with special attention to those often undetected wounds of the vaginal wall with skin intact.

No doctor is now justifiable in attending any woman in confinement without putting on a freshly washed (even if not sterilized) muslin gown over his clothing.

The ideal method of delivery is upon a portable surgical table (which costs but $20) on a sterilized Kelly pad covered by a freshly boiled towel or sheet.* If the patient will not consent to this, the bed—always dirty, from a surgical standpoint—must be covered with a rubber sheet, positively sterile, with boiled towels over it. Anything short of this constitutes gross carelessness.

The doctor's chief fault in carrying out these details consists in using a Kelly pad or rubber sheet which has not been rendered surgically clean after the last confinement or surgical operation. The best method, when the physician has no sterilizer, is to have the rubber scrubbed with soap and water, then "gone over" (both sides, everywhere) with pure carbolic, then with alcohol, and finally with bichloride solution 1-500; and then wrap it in a sterile cloth instead

*At the Woman's Hospital one vaginal examination is made after preparation of the woman; then an antiseptic vulvar pad is applied and left until "the waters break," when she is transferred to the table—thus being ready for instrumental delivery or for sewing any tear if these be necessary.

of "jamming" it into a dirty grip with the thought: "That isn't exactly 'surgical cleanliness,' but it will be as clean as the next patient is!" It is just such little slips that cause so many deaths.

IV. MEDDLESOME INTERFERENCE.

Among the North American Indians puerperal infections are rare—in spite of their filth—chiefly because the fingers are never introduced into the vagina. There can be little doubt that repeated vaginal examinations, attempts to hasten labor by (unclean) digital dilatation of the os, rupture of the membranes, etc., are the cause of a large proportion of puerperal infections. Normal labor is physiological, not a pathological process. Too much interference with nature's plan breeds mischief. One, or at most, two, vaginal examinations should suffice. Instrumental, or even digital, efforts to hasten labor should be resorted to only on definite indications, and then with all surgical precautions.

V. SPREAD OF VENEREAL DISEASES.

The rapid and alarming spread of venereal diseases (especially of gonorrhea, which is worse than syphilis) needs but to be mentioned to be appreciated. It is the duty of every doctor to caution every patron who is a prospective father to carefully abstain from illicit intercourse during the later months of his wife's pregnancy. Many cases of blindness, as well as gonorrheal sepsis, may be prevented by a few timely words from the not yet (thank God!) extinct family doctor.

CONCLUSION.

In conclusion I wish to state emphatically that "puerperal fevers" will practically disappear when doctors, nurses and midwives learn that *the woman in labor and immediately after should be treated upon the same rules of antisepsis as govern the surgeon in the most extensive operation.*

DISCUSSION.

DR. CROUSE: What form of infection does the doctor find usually leading to puerperal insanity?

DR. NORSWORTHY: The essayist spoke of its being sometimes necessary to give a vaginal douche twenty-four hours after delivery. I would like some further information as to the circumstances under which such a douche is indicated. I was glad to find the doctor recommending the use of turpentine.

DR. LANPHEAR: The first question is one I am not prepared to answer off-hand. The general impression I have formed is that puerperal insanity is always due to sepsis. The infection may consist of streptococcus or staphylococcus, or be a mixed infection. There is always high temperature. All the cases of puerperal insanity which I have seen are exactly the same as those that follow operations, but beyond that I would not care to go. As to the second question, I would say that the answer is best given in the history of the case I reported. It was a case of acute inflammation limited to the peritoneum. In such cases, when the uterus has not been thoroughly cleaned out, when the existence of a foul discharge shows that there is a danger of the infection extending, I think the douche is indicated. All these operations, however, should be attended to by the doctor; they should never be left to an ignorant midwife or nurse.

Votes of thanks were accorded Dr. Tuttle and Dr. Lanphear for their instructive and interesting addresses.

CHRONIC CONTRACTION OF THE PROSTATIC FIBERS, ENCIRCLING THE VESICAL NECK—WITH REPORT OF A CASE.

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From the beginning of a physician's career until its close, he will from time to time encounter cases new in his experience and often puzzling. From these cases he gleans most valuable information and a report of them often helps a professional brother.

Chronic contraction of the prostatic fibers encircling the vesical neck is evidently a subject considered by few authors. After a diligent search I was able to find the condition described in but one of our standard text-books on genito-urinary diseases. The purpose of this paper will have been accomplished should it prepare some of you to recognize this trouble should you ever encounter it. The writer did not at first recognize the true condition in his case, and consequently the proper treatment was not instituted. The disease is so well described by Dr. Eugene Fuller in his late work, "Diseases of the Genito-Urinary System." you will pardon me for quoting him quite extensively:

"If one examines the writings of Civiale, Roux, Caudemont and other contemporary French genito-urinary authors, he will find much space allotted to what is termed by some of them neuralgia of the vesical neck. The terms neuralgia and contracture used by these writers are expressive of like conditions. Contraction of the vesical neck is used much in the same sense of spasm of the vesical neck, the only difference being that spasm is supposed to represent a momentary condition of tonicity of the muscular apparatus surrounding the deep urethra, while contraction is indicative of a tonicity somewhat more lasting. Slade, who studied under Caudemont, in trying to explain the difference between these two expressions, says: 'Contraction is different from spasm, which is essentially

temporary. Although the former may commence with spasm and also be complicated by it, contraction comes on slowly, and generally disappears in like manner. Contraction in the French sense is entirely a functional condition. It is not permanent, and it is associated with no pathological change in connection with the vesical neck. These terms are little used at present, since it is now known that they do not represent true diseased conditions, but only reflex vesical symptoms, which frequently attend various pathological states of the sexual apparatus, the rectum, the kidneys, etc.'"

After these references to the French views on spasm and contraction at vesical neck, Dr. Fuller says: "The condition which I am now to describe as chronic contraction of the prostatic fibers encircling the vesical neck represents a pathological change in the part, and is consequently totally different from anything mentioned in the French literature, reference to which has just been made. I am convinced, however, that the condition of chronic contractions bears a relationship to the functional one in that it represents a pathological state which may apparently result from functional contraction or spasm in cases where, owing to some settled disorder of the sexual apparatus, the rectum, the kidney, or other part, functional contraction of the vesical neck has existed as a prominent symptom for a long time. The lesion in these cases of chronic contraction can be compared with that in connection with the sterno-cleido-mastoid muscle in chronic torticollis. It is permanent, rigid and unrelaxable, even under profound anesthesia. If a boutonniere perineal incision be made while a patient of this description is under an anesthetic and the forefinger of the surgeon passed through the opening made in the floor of the membranous urethra backward, in an attempt to enter the bladder, the finger tip will find itself tightly engaged in a ring-like contraction in the deeper portion of the prostatic urethra, where, under normal circumstances, the canal should be wide, funnel-shaped and elastic, merging itself into the vesical cavity in such a manner that it is impossible simply from the feel to determine just where the urethra ends and the bladder begins. A contraction of this nature, as I have said, is large enough in my experience to admit the tip of the fore-

finger, and consequently its calibre is so nearly that of the anterior urethra, that its presence cannot be detected by means of a good-sized sound passed along the urethra. If the surgeon feels carefully with his finger tip he will discover the urethra just in front of the circular contraction to be roomy and somewhat pouched. The mucous membrane of the entire portion of the deep urethra will ordinarily feel perfectly normal and free from any evidence of previous inflammation. If now an attempt be made to crowd the finger tip through the contraction and into the bladder, it will be found either impossible or only possible as a result of tearing apart the circular bands. In case the circular bands cannot be ruptured, they can be cut along the floor of the urethra, thus allowing the finger to slip into the bladder and to thoroughly explore the vesical neck. It will then be appreciated that there is no hypertrophy of the prostate, an absence of which should also have been suspected from a failure to find evidences of any enlargement from previous digital rectal exploration. After the contracture has been thoroughly ruptured or cut through, little evidence will be left to the feel to indicate the nature of the lesion which previously existed. I have so far been unable to procure a histological examination of the unusual condition I have described, since all my patients suffering in this manner have recovered as a result of operation. Now, the clinical symptoms prominent in cases of this nature, and, in fact, it might be said the only true symptoms dependent on the lesion itself, consist in an inability, either complete or partial, to void the urine. This inability is of gradual development. It generally begins as a hesitancy in starting the stream, and then as the act of urination approaches completion there is a dribbling, due, apparently, to lack of control over the vesical sphincter, together with a feeling that a want of power exists to completely empty the bladder. The complaint is at first intermittent in character, but after a time it becomes permanent. Next in order the patient experiences attacks of complete retention. For a number of hours he may be unable to urinate. Early attacks of this nature may pass off themselves as a result of rest, sitting in hot water, etc., but after a time it will be found necessary to employ a catheter and to empty

the bladder on one or several occasions before nature will re-assert herself. Finally, all power to urinate is lost, and permanent recourse to the catheter is necessary. If pain or other symptoms be present, they are due to the existence of some disorder of the sexual apparatus, kidney, etc., which has acted as the originator of the trouble at the vesical neck, or else to vesical infection, which has resulted from instrumentation or stagnation of urine, consequent on the retention. This train of symptoms is of slow development and three, four, or perhaps more, years may intervene between the time when the first difficulty in connection with urination was noticed and retention occurs. A diagnosis of this condition has to be made largely from the clinical history of the case, together with an exclusion of other causes for impediment to urination, which present tangible evidences of their presence, the only positive evidence that chronic contraction exists being afforded by the feel represented to the finger tip introduced through a perineal incision while the patient is under an anesthetic. If, however, one studies the clinical history of his cases carefully, and thoroughly eliminates the causes of retention which present tangible evidences, he can make himself fairly positive of the diagnosis before resort is had to operation, which serves the double purpose of settling the diagnosis and of correcting the disease. The only treatment for chronic contraction of the prostatic fibers encircling the vesical neck, which in my experience has shown any favorable results, consists in thoroughly rupturing, or in cutting through them. This can be accomplished by means of the finger, or the knife, as the case may be, introduced through a perineal incision. Perineal vesical drainage should be practiced after the operation. Treatment such as this at my hands has been followed by complete disappearance of all subjective symptoms."

As the case of chronic contraction of the prostatic fibers encircling the vesical neck which I have to report was not caused by any recognized, pre-existing affection of either the rectum or genito-urinary tract, I shall not consider the differential diagnosis between such a case and one caused by any of these troubles. The classical

description as given by Dr. Fuller will the better enable you to fully understand the following case:

R. H., a strong, healthy country lad, sixteen years old, since early youth, has had trouble in passing his urine. In March, 1900, he consulted Dr. T. W. Wiley, of McKinney, Texas. He was then having spells of retention. Urine was clear and free of anything indicating disease of the genito-urinary tract. Tumor of bladder diagnosed and supra-pubic operation done. Contraction found and divulged moderately. Operation gave partial relief for short time. In December, 1900, he had attacks of retention again. During one of these attacks the supra-pubic wound gave way and until the next operation, in January, 1901, all urine passed through opening above pubes. On January the 12th, 1901, I was called to McKinney to see the patient. Dr. Wiley still suspected a growth at vesical neck. The supra-pubic opening was enlarged. Cystitis having developed, there was a fair quantity of pus with the last urine to pass from bladder. Finding no tumor search was made with finger for opening into prostatic urethra. This was attended by failure until a small catheter was passed, which had been used for irrigation after supra-pubic wound had been enlarged. The end of this catheter served as a guide to the opening. Such was the contraction of the encircling fibers at vesical neck that much force was required to insert the index finger as far as first joint. With right index finger in contraction, with the left a careful examination was made of the prostate gland through rectum. Not the slightest enlargement could be detected. At this stage of the operation I remarked to Dr. Wiley that I had encountered a condition which was entirely new to me. The contraction was divulged with finger and a large-sized sound passed. Patient was soon able to return home, the operation, however, giving only partial and temporary relief. On returning from McKinney, I began to review my text-books for information, but could find no satisfactory solution of the case. Some two weeks later I received the work of Dr. Fuller, from which I have quoted. I immediately wrote Dr. Wiley of the light shed on the case, informing him of strong probability of failure of last operation. In the fall of 1901 patient was having serious trouble

again. Cystitis added to the symptoms caused by the contraction. Towards the latter part of December the supra-pubic wound gave way again with considerable sluffing of surrounding tissues. All urine then passed through this opening. On January, 4, 1902, I again went to McKinney to operate on the boy. Besides Dr. Wiley, I had the assistance of Drs. Kirkpatrick and Largent, of McKinney, and Dr. Calaway, of Midland, Texas. Patient was given chloroform, and although completely anesthetized we could not irrigate bladder with receptacle seven feet high. No fluid would pass through the contraction. It was necessary to pass a small, stiff catheter for the irrigation. After bladder was thoroughly washed a No. 28 grooved staff was with some difficulty passed. Perineal section was then made and on introducing finger the membranous urethra was found normal in size, as well as anterior portion of prostatic urethra. At posterior portion of prostatic urethra the tip of finger came in contact with a tight circular contraction. No little force was required to introduce finger to depth of nail. After permitting each assistant to examine the constriction, the left index finger was again passed with much force as far as first joint. The circular fibers were cut on floor and finger passed into bladder. Not feeling that the contraction was thoroughly relieved, a shallow cut was made on roof of canal. After fibers were cut, the canal felt normal. There seemed no hypertrophy of these circular bands, and the prostate from rectal touch was found normal. As described by Dr. Fuller, the urethra in front of contraction was pouched. Perineal drainage was kept up for several days with daily irrigation of bladder. The boy recovered rapidly from the operation. A recent letter from Dr. Wiley states that the result of operation was all that could be desired. The urine is clear and the patient is entirely free of all his old symptoms. A No. 30 F. sound is passed with ease. I have every reason to believe that the cure will be permanent.

DISCUSSION.

DR. KEILLER: In a paper in the *British Medical Journal* I came across a number of cases similar to the one just reported, in all of which it was claimed that complete relief was obtained by operation.

DR. J. E. THOMPSON: This is the first time I have heard of such a condition as that just described, but I may quote an analagous case. I recollect on one occasion seeing a patient who had chronic rectal trouble. He thought it necessary to keep his bowels moving two or three times a day. He came to me with symptoms pointing to stricture. I found that the sphincter muscle was chronically contracted. There were no cicatricial lesions. Of course the cause was undoubted—too much use of the sphincter muscle. In the present case the age of the boy and the absence of gonorrhea, as well as of any other history accounting for the condition, makes the case peculiar.

DR. CANTRELL: I have never had any experience along this line, but I have been interested in the paper, and in future will be more careful to look out for conditions of the kind referred to.

DR. H. A. WEST: I do not know anything about the particular subject dealt with, but the reading of the paper has reminded me of an interesting case that lately came under my observation showing the interchangeable symptomatology of affections of the rectum and bladder. Nothing I could use had any effect. The patient, a woman, suffered from constant vesical irritation. At last I found a small urethral caruncle. I proceeded to remove it, and she was better for a few days, when the bladder irritation returned. At last she said something about piles, to which my attention had not been previously drawn. Finding a mass of inflamed and ulcerating hemorrhoids, I proceeded to remove them, and her vesical trouble was immediately relieved. In other words, treatment of the rectal disease completely cured the bladder trouble.

DR. S. E. MILLIKEN: The subject is a very interesting one. I believe the condition is due to the contracted state of the muscles.

DR. SHELMIRE: Contraction of the muscles is not an analagous condition. No operation on the membranous urethra would have had any effect. The growth was in the posterior part, and was a hard structural ring. As to the cause we could not find anything. I am sorry I had not as accurate a history of the case as I would have liked. The only thing that could have acted as a cause was that the boy masturbated moderately. Still, I believe if that were the cause such conditions would be more frequent.

THE SURGICAL TREATMENT OF ENLARGED PROSTATE.

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If a reason were sought for the recent great activity in the development of the surgical treatment of enlarged prostate, it could easily be found in the following conditions. Practically all men, or at least a very large number of men, over sixty years of age have more or less of the distress and disability that follow in the train of symptoms due to prostatic hypertrophy. It has been truthfully said, too, that it is the man ripe in years, mature in judgment, and full of honors and usefulness and whose presence and valuable counsels can least be spared from the circle in which he lives, that is the victim of this disease. Under accepted methods of treatment up to within the immediate past, the possessor of a prostate that prevented the complete emptying of his bladder, was condemned by force of circumstances of the prevalent treatment to a lingering death of agonizing pain, except the fortunate few who were able by leading "a catheter life" to postpone the inevitable until in the kindness of fate some other malady or infirmity took them off.

Hitherto, the results of radical surgical methods aimed at the removal of the cause of the distressing condition of prostatism had not been such as to justify in the minds of surgeons generally its adoption except in the most favorable cases under the most exceptionally promising circumstances. Consequently, after the usual fruitless efforts at relief by medication, these most worthy and influential citizens were given a catheter, instructed in its use, aided by an occasional antiseptic bladder irrigation, and were told when they could no longer procure comfort from its use there was nothing left but to resort to opiates and wait with what composure they can the coming of certain doom.

Happily, meanwhile, a few surgeons more aggressive than the

rest were continually asking the question, "Why these things should be," and cut short the useful lives of the choicest men of the land.

In the evolution of the surgical treatment of urinary obstruction due to enlarged prostate, as worked out by these restless spirits, seeking for a ray of hope for these unfortunates, we have by common consent reached that point in the development of operative technique that offers a cure by methods entirely within the limit of surgical safety.

It is not the intention to discuss at this time the steps by which this conclusion is reached any more than it is to deal with the complex problem of hypertrophied prostate from an anatomical or pathological point of view. Enlarged prostates with all their train of disastrous consequences, men have had, do have, and will probably continue to have. Let others of more philosophical turn of mind attempt to answer why. It is enough for this inquiry to know that with the present method of operative treatment men should not, must not, be allowed to die from prostatic obstruction without an effort to save them. There are reasons to believe that in the immediate future, as a result of still better technique and early operations, enlarged prostate will cease to be the *bête noire* of surgery and the constant menace to the lives of old men.

The proper surgical treatment of enlarged prostate depends upon two things: the general condition of the patient, and the size, situation and condition of the gland itself.

To state the case a little dogmatically, perhaps, if the patient's condition is not too reduced from age, cystitis, pyelitis and exhaustion to stand a somewhat prolonged operation, and sometimes a rather bloody one, and if the prostate is a large one, the gland should be removed by prostatectomy, either through a supra-pubic or perineal incision. Sometimes neither of these methods is easy to do, and both are often difficult and bloody. The choice of route will depend upon the skill of the individual operator, the thickness of the abdominal wall, the depth of the pelvis and the size of the gland to be removed. In most cases of large middle lobe projecting up into the bladder the tumor can be more easily reached through the bladder, as, indeed, can all or most all very large

glands. Small, soft enlargements can be attacked better by the perineal incision aided by special retractors and hooks to draw down the capsule and with it the gland or part of gland to be removed. If there has been no adhesive inflammation between the gland and its capsule, the glandular tissue can be "peeled out" without any great difficulty, but in cases ordinarily coming to operation there will nearly always have been adhesion enough between the gland and capsule to make the "peeling out" much easier to read about than to do.

In cases clearly unsuitable for prostatectomy prostatomy by the Bottini method may be done. The method is applicable to a limited number of cases, and is only partially successful in them. The operation is not the simple and easy one to do that some of its advocates would have us believe, and has its dangers as well as limitations. The mortality after prostatomy is undeniably less than after prostatectomy, but so also are the chances of a cure after it unquestionably much less. So that it will probably be better and safer surgery in cases too far gone for prostatectomy to offer a reasonable hope to trust for temporary relief from pain, distress and sepsis to supra-pubic drainage, unsatisfactory as it generally is to both operator and patient.

It now appears to be a reasonable conclusion that the surgical treatment for enlarged prostate has approached that stage in its history to justify its claim to general recognition, as not only admissible, but urgently demanded as giving strong grounds for hope in a class of cases that are of all men the most miserable and that are otherwise "without hope in the world."

But the surgeon cannot save any respectable number of cases of enlarged prostate by this or any other plan of treatment as long as they are only sent to him reeking with sepsis and completely exhausted by "hope deferred" as a result of the "catheter life" or other worse than temporizing methods of treatment.

Let us hope the future has in store for these old men better things than their predecessors even dreamed of as possible. If this hope is to be realized it will be largely along the lines of better development of individual skill and technique, and especially from the

realization by the family physician that he has a manifest duty to these cases and that duty is to refer them to the surgeon at the *beginning* instead of the *end* of the case.

Otherwise he must prepare to plead guilty to the charge of having *not done* for his patient the best that can be done for him, and which he certainly had the right to expect and even to demand at his hands.

REPORT OF A CASE IN INTESTINAL ANASTOMOSIS.

J. R. STUART, M. D.,
HOUSTON, TEXAS.

Mr. M., white, male, age 30 years, came to this institution February 20, 1902, with the following history: Had suffered more or less with constipation since infancy and had had rectal discharges of blood at intervals since the same time. One year previous to date, he suffered from an attack of typhoid fever, of the ordinary type, complicated by bloody stools. The present attack of obstipation began one week previous to his entrance. One day, prior to entrance, he began to have fecal vomit. His pulse, upon examination, was regular and temperature normal; and his abdomen very tympanic. An incision into the abdominal cavity revealed the following:

The illium was very much distended and deeply conjested. About midway of the small intestines, a portion of the bowel, approximately four inches in length, had become cartilaginous and the lumen of the bowel in this locality had become, consequently, completely obliterated, not even allowing the passage of gas. The bowel below contained neither fecal matter nor gas. The cicatrical part of the bowel referred to had such a short mesentery as to prevent the bowel being brought up to the incision. On this account, no effort was made to remove the portion of the bowel in question, but the bowel, on each side, was brought up and an opening made in each portion and the two carefully sutured with mattress sutures. The patient rallied readily from the operation, and the next morning had a free movement of the bowels, the first in eight days. On the fifth day after the operation a stitch abscess formed in the lower portion of the wound which, however, healed in a few days. On the ninth day, from the date of the operation, he developed a case of pneumonia, in the lower posterior lobe of the right lung. This complication lasted one week only, since which time he has

made an uninterrupted recovery, and at the present time is perfectly well.

The points of interest in this case are the extent of cicatrization of the bowel and the abnormal length of time of existence, without having produced earlier or more pronounced symptoms. The unusual necessity for making the lateral, rather than the end to end, anastomosis.

Finally, we think the patient is to be congratulated, considering the hurried preparations for operation and the length of time of his attack, upon the fact that he is still in the land of the living.

The physicians concerned in this operation were Drs. Wood, Urwitz, Red, Stuart, Ford and the writer.

REPORT OF TWO INTERESTING CASES OF BRAIN INJURY.

F. B. SHIELDS, M. D.,
VICTORIA, TEXAS.

M. C., Mexican, age 79 years. Assaulted on the night of November 2nd with the butt end of a shotgun and a club, receiving thereby a compound, comminuted, complicated depressed fracture, involving portions of the frontal, parietal, temporal and occipital bones.

Beginning at hair line directly above the inner canthus of right eye, the fracture extended backward parallel to the suggital suture, to and into the occipital bone, curving downward and forward toward the mastoid process; forward from this point the fissure reached within one inch of the external angular process of the frontal bone, from thence its point of origin was gained. Within this space (7x3¼ inches in extent) the skull was comminuted and depressed.

When patient arrived at the Valley View Hospital the classical symptoms of compression were present. Operation took place some four hours from time of injury.

Horseshoe scalp incision was made, De Vilbiss trephine and ronguer forceps were employed, fractured bone removed, two large branches of temporal ligated, immense clots were removed from the unruptured dura, wound thoroughly irrigated with warm sterile water, gauze drain inserted, scalp sutured with silk-worm gut, and the almost moribund patient removed to the adjoining surgical ward, where two litres deci-normal salt solution were given per rectum, 250 c. c. subcutaneously, besides other suitable stimulants.

Five hours later nurse reported bandages dyed crimson. In view of the fact that our patient had not yet rallied from shock, reopening of the wound was decided against, and instead a compress was placed over the anterior branch of temporal artery, over this a tourniquet, by which means hemorrhage was quickly controlled.

Patient began to revive under heroic doses of strychnine, atropine, nitro-glycerine, etc. Left-sided hemiphlegia was now discovered.

General condition gradually improved until the third day, when cerebral vomiting and pulse, incontinence of urine and fæces, stertorous respiration, dilated pupils, cold, clammy sweats, presented. Dressings removed, also several sutures and enormous clots—dura still apeared normal.

Fifth day temperature began to rise, and upon removal of dressings, necrosis of the scalp and edges of fracture was to be seen. The necrotic spots in the scalp were mopped with a strong silver solution; the bone was trimmed by means of the rongeur.

Patient began to grow comatose, pupils dilated widely, respiration very shallow, radial artery, pulse less, muscles of deglutition became paralyzed, rectum refused to retain nourishment, and in this condition the old fellow remained eighteen hours despite the most powerful of stimulants.

Toward morning of the seventh day the color began to steal over our patient's face, the radial pulse again became perceptible, drachm doses of milk could be swallowed.

Eighth day, upon removal of the dressings, the dura was found boggy and bulging, into which an incision was made, evacuating some four or five ounces of straw-colored fluid; gauze drain inserted; redressed.

Sac full again by the tenth day; scalp necrosis spreading very rapidly, denuding the skull in some six or eight spots the size of a half-dollar. Wild and furious delirium set in, rectal temperature 102, 103 and 104, pulse 140-160, face flushed, eyes bright and glittering. Restraint now became necessary as patient would savagely tear the bandages and gouge his fingers into the wound. Handcuffs and ropes were employed; ice bag to brain, and the long list of hypnotics failed to sooth. Nothing short of restraint would suffice.

The wrists, from being constantly twisted and wrenched, fell heir to periosteal abscesses, which necessitated incising and curetting.

Improvement took place very slowly; mania continued for twenty

days; recovery, however, ultimately occurred, and patient was discharged on January first.

P. R., a negro, age 30 years. Injured on the night of December 11th. Received ten buckshot in the left half of his head, the wounds ranging within a space of 4x7 inches, the farthest to the front being immediately over right orbit, while the hindmost struck three-fourths inches posterior to the mastoid process.

Was brought to my office, the scalp shaved and cleansed, the wounds thoroughly ascepticized. Dr. Crouse and myself, upon examination, found pupils, pulse and respiration indicative simply of shock and the ten bullet wounds, from which bleeding had about ceased. Being unable to determine which bullets, or if any, had penetrated the skull, it was decided to await further developments. Wounds dressed; patient sent home.

Six hours later pulse, respiration and pupils normal, loss of speech, and a right sided hemiphlegia involving the cheek, mouth, tongue, larynx, arm, hand, leg and foot, indicating either injury or pressure of that motor area situated in the left ascending frontal and ascending parietal convolutions.

Thinking perhaps some or all this paralysis might be due to an absorbable clot, besides taking into consideration the unsanitary surroundings which are usually synonymous with a negro cabin, the operation was deferred.

Within twenty-four hours the function of deglutition had been recovered, facial and lingual anesthesia disappeared, temperature, pulse, pupils and respiration normal.

By the end of the third day arm and leg anesthesia had diminished.

Fourth day voluntary movement in leg and arm; head wounds doing nicely. Evening of the seventh day paralysis of leg, foot and arm had practically disappeared, but the thumb and fore-finger were still absolutely useless. Pulse suddenly shot up to 110-120; temperature 100-102.

On the morning of the eighth day Drs. Crouse, Swain and myself decided to operate. The horseshoe scalp incision was made to include the ten wounds. Eight bullets were recovered from the

scalp and two punctures of the cerebral vault were found, the lowest of which was situated one inch above Reid's base line and three-fourths of an inch anterior to the external auditory meatus, while the other bullet had made an entrance at a spot one inch above, and slightly posterior. These punctures were enlarged with the De Vilbiss trephine, the rongeur converted the two apertures into one. The plate of bone (2x3 inches) was removed. The dura was found lacerated where the two missles had ploughed their way into the cerebral tissue. By means of a probe, the upper bullet was located and removed; its fellow could not be found, and the search was discontinued for the patient's vitality had ebbed very low, owing to the furious hemorrhage.

The dura was sutured with fine silk, the scalp with silk-worm gut, gauze drain inserted, patient put to bed and given one litre deci-normal salt solution per rectum, 400 c. c. subcutaneously, besides strychnia, atropia, etc., by which means the profound shock was overcome.

From this point on the improvement was rapid, and patient made an uneventful recovery.

These cases were deemed of interest on account of age, extent of injury and complications of the first case; the unfavorable surroundings and extent of injury in the second.

Our conclusions, then, should be, that with modern technique depressing, crushing and penetrating injuries of the cerebral vault, even though of extreme nature, can be recovered from, which a few years ago would have terminated fatally.

DISCUSSION.

DR. KEILLER: While there is life there is hope—especially if the patient is a negro and not much use.

DR. THOMPSON: I congratulate the author very much on his treatment of both cases. If they had not got assiduous attention they would probably not have got well. They are both remarkable cases.

The following papers were read by title: "Holocain as a Local Anesthetic," Dr. Frank T. Smith, Chattanooga, Tenn.; "Injuries to the Eye," Dr. John O. McReynolds, Dallas.

SECTION ON MEDICAL JURISPRUDENCE.

A CASE OF MENTAL DISEASE DUE TO FRACTURE OF THE SKULL, WITH PARALYSIS OF THE RIGHT FACIAL NERVE, OR TO SYPHILIS, OR TO BOTH.

M. L. GRAVES, M. D.,
SAN ANTONIO, TEXAS.

Mr. J. S. Gentry, a dairyman of Hot Springs, Ark., a man of considerable intelligence, but limited education, received a severe injury about the 21st of December, 1901. At this time and prior to the injury his health had been excellent, and he was a very energetic and successful tradesman.

While driving along on a paved street of Hot Springs, his horse, attached to an express wagon in which he was seated, became frightened and ran away. His wagon collided with another with considerable force, projecting him almost perpendicularly in the air, and he fell striking the right side of his skull upon the macadamized street. The fall was said to be about twenty feet. He was picked up unconscious, and so remained for eight hours. He bled at the nose slightly, but a large quantity of blood came from his right ear, and for about six days after the accident, once or twice daily he would spit up bloody matter, after hard coughing spells. There was also said to be a black coagulum of blood in the corner of his right eye, next to the nose.

During the first night after the accident, while in a stuporous condition, both eyes remained closed, but very soon his right eye was noticed to remain open, while the other one was closed. It was thought that paralysis of the right side of the face was present from the very first. He is said to have had some light attacks of jerking in the muscles of the arms a short time following the

injury. Both ears were badly discolored, and around the back of his head from behind the right ear his head was badly discolored and bruised. During the first night after he was injured, his teeth were tightly clinched, and for three days thereafter his eyes were said to be crossed in an extraordinary way. After three days this symptom disappeared. His first return of consciousness occurred eight hours after the injury, in which he replied to questions with partial intelligence, but soon lapsed into his former condition, and especially after the fourth day, when put under the influence of chloral to keep him quiet, he remained irrational, incoherent and much disturbed mentally.

From the best information obtainable he has never been quite at himself since the injury. No fever was known to have been present after the injury. On the fourth day after the accident he was quite sick at his stomach, but did not vomit. In reply to inquiries regarding stiffness or retraction of the back of his head or neck, I learn that he tried to stand on his head and heels like a man troubled with meningitis about the fifth day, and it lasted about three weeks, but these manifestations were paroxysmal. He manifested no particular sensitiveness, since the injury, to auditory, visual or tactile sensation. From the second day of the injury for about three weeks, he manifested much distress in his head, which was evidenced by clasping his hands across his forehead and complaining of his head hurting him. His mental disturbance continued to grow worse. He was restless, sleepless, greatly agitated and markedly depressed. Hallucinations of sight and hearing were unquestionably present and delusions of persecution as well. Upon the slightest noise, and frequently without hearing any noise, he would become greatly excited, call for a gun to defend himself, and assert that injury or assassination threatened him. These symptoms continued with persistence, but with more or less variation in severity, until February 15th, when he was admitted into the institution.

Upon rigid inquiry as to his family history, I learn that his wife and friends know absolutely nothing of any mental or nervous disease anywhere in his family. That he had never had any serious

injury or illness prior to this attack, and that his health had been exceptionally good. Especially had he given no history whatever of any injury to his head, and at the time of this occurrence was perfectly well, except for a cold. Upon examination, however, I find enlarged lymphatics in the groins, axilla, post-cervical and epitrochlear regions. A spot of alopecia on left side of scalp, and a brown spot on the glands, strongly suspicious of constitutional infection. I should perhaps also mention that he has a rupture right inguinal and the right testicle is small and only partially descended, congenital.

The patient is a small man, 5 feet 7 inches high, and weighs about 123 pounds. There seems to be very little change in his bodily weight and appearance, although he claims to have once weighed 165. Upon examination, his pulse was found to be good in rhythm, volume and rate. A trifle exaggerated in the latter, being eighty-four, probably owing to the nervous and muscular agitation. His respirations were about normal, twenty. Neither heart nor lungs have any evidence of disease. The kidneys are healthy. For the first few days he suffered with looseness of the bowels, but this was probably due to our therapeutics.

The most striking evidence of disorder was his mental disturbance. He was confused, depressed, emotional, restless and had evidently been bellicose. He was admitted to the institution strongly handcuffed, and his attendants told me that he fought viciously at times, although his character has been that of a mild, peaceable man. He was especially prone to strike with his arms and kick viciously, when his purposes were interfered with. He feels some impending calamity, as death, or destruction, or bodily injury, and seeks to avert it by restless muscular movement and efforts at defence. These, however, have been greatly dissipated since his residence in the institution.

He does not recognize clearly and certainly the names and characteristics of persons with whom he meets, but memory seems rather clear of those he has known before the injury. His tendency is to talk incessantly, and to accuse himself of all sorts of crimes and unworthiness, in spite of the fact that he bore an excellent reputa-

tion, and himself asserts that he was formerly a good man, though he is now a thief, a robber and a liar, and wants to reform and preach, but God will not hear his cry. The underlying tone of his mental disorder is melancholia, but it is not the typical form of mental depression, with inhibition of all the reflexes, the organic nerve impulses, the emotions, the judgment and the will.

Marked melancholias present evidences of mental pain, together with physical depression in every lineament of face and form and attitude. The pulse is slowed, the respiration diminished, the skin flabby and cold, the bowels costive, the tongue coated, the breath foul, the appetite gone, the reflexes diminished or well-nigh abolished, the face expressionless and general apathy manifested in sensation, motion, intelligence, judgment and will. Except, of course, in agitated cases where the mental distress is markedly increased and accompanied by great muscular agitation.

This case, however, presents the striking features of considerable, though inaccurate, perception; of rational, though not always coherent, conversation. Of frequent changes of ideas, of vacillating will, of emotional variations, of incessant talking, and rather quick response to all impulses of an organic nature, of a good appetite and of sound sleep. His tongue is not coated. His skin is not torpid, flabby or cold; his breath is not offensive; and his secretions not inactive. His physical condition is decidedly better than a corresponding case of acute melancholia, and in some respects, its rapid changes resemble mania more than melancholia.

Upon examination of his head, we find strong evidences of traumatism behind the right ear. The right parietal bone shows a slight projection over the squamous portion of the temporal bone, and a corresponding depression not far from the squamous suture, and looks very much like a slight overlapping of the parietal bone at this suture. The depression extends horizontally back, and turns around a slight projection of the parietal bone and turns upwards towards the sagittal suture a short distance. It is barely possible that the lambdoid suture or junction between the parietal and occipital bones is also affected.

The most marked physical symptom presenting is the paralysis,

perhaps complete, of the right seventh or facial nerve. The right side of the face in all its musculature, animated by the seventh nerve, is immovable except by mechanical means. The right eye remains permanently open, but all its movements seem to be perfectly preserved. Electric excitability of the seventh nerve at all its focal points is abolished. I have especially tested the fifth nerve, which supplies sensation to the face and motion to some of the buccal muscles, and I can make out no certain disorder of its functions. If there be anything at all, it is simply slightly reduced sensibility.

The other cerebral nerves, the motor occuli, which supplies innervation to most of the eye muscles, is unaffected. The trochlear which animates the superior oblique is unhurt. The olfactory is not affected, as I have made application of such odors as iodoform, asafetida and ammonia to the nostrils, and he distinguishes about as well with one side as the other. The sixth pair which animate the external oblique show no deviation from normal. The glosso-pharyngeal, supplying taste to the posterior third of the tongue and animating some of the pharygneal muscles, is normal. The pneumogastic, which supplies all vital organs, shows no deviation from health. The spinal accessory, innervating the sternomastoid and trapezius muscles, readily responds to the electric current, and finally the hypoglassal, supplying the intrinsic muscles of the tongue, is in prime working order. His taste is perhaps slightly obtunded in the right anterior two-thirds of the tongue, but this is by no means certain, as taste is at most a matter of education, and is dependent not only upon the nervous integrity and individual susceptability, but also upon the coated condition of the tongue and many other conditions.

It is perfectly certain that the posterior third of the tongue, supplied by the glosso-pharyngeal nerve, is not involved; and if the anterior portion of the right side is at all involved, it is of course produced by the chorda tympani branch of the seventh, which supplies the taste filaments in this region.

My incompetency to examine the optic or auditory field led me to trespass upon the kindness of my friend Dr. Moss, who courte-

ously examined this patient for me and reported substantially as follows:

Vision and audition in left side perfectly normal. The papilla of the right eye shows very slight cloudiness as if a choked disc from some former compression had existed, but had been removed and the slightest sign of atrophy resulted, but this is very slight and not conclusive, and vision will probably be all right. The right ear shows excellent bone conduction, the equal of the left side, but air conduction is defective on the right, the drum being opaque and thickened and adhesions existing. He thinks this condition probably due to hemorrhage and the middle ear inflammation following the injury.

One interesting phenomenon is the complete absence of the patellar tendon reflex on both sides. A symptom opening a field of specific infection.

CONCLUSION AND CONJECTURE.

From this rather imperfect and hurried description, it would appear that we are justified in concluding that this marked mental disturbance, and, in fact, the whole train of symptoms are primarily due to the cerebral injury received in December, and from the appearance of the skull at this time we are justified in assuming that this patient suffered a fracture of the skull at the time of the fall, and that this fracture is located in the rear and base, probably involving the parietal and temporal bones, and that the fracture extends through the petrous portion of the temporal bone, involving by actual contact or pressure contiguity, the internal auditory meatus, or preferably the Fallopian canal, through which the seventh nerve passes to its terminal distribution. It is questionable if the occipital bone is at all involved in the injury and as the Rolandic area is free from motor and sensory disturbance, as manifested in the extremities, we are justified in assuming that no injury occurred to that portion of the brain, except perhaps the general concussion. We are also justified from the absence of patellar reflexes, from the enlarged lymphatics all over the body,

from a spot of alopecia on the scalp, from a pigmentary spot indicative of a former chancre on the glans, and finally from the pupillary inequality and irregularity at time of admission, and from the marked tolerance of large doses of iodide of potassium, and the subsequent improvement, in concluding that this patient has constitutional syphilis. That it is concomitant and coexistent with the cerebral injury and doubtless pre-existent, and that at least some of the symptoms of this case are probably traceable directly to the tertiary results of this infection. It is quite possible that both causes are operative, viz., the fracture and the infection.

The improvement manifested may possibly result from the absorption of a blood clot, due to the traumatism and located at the basal cortex, but this I consider rather doubtful. Another possible contingency is pressure from a plastic meningeal inflammation, either traumatic or syphilitic, in the meningeal sheath of the seventh nerve. Perhaps rather a far cry from a scientific standpoint.

In regard to the facial paralysis, a possible conjecture resulting from Dr. Moss's findings is, the extension of inflammatory processes from tympanic cavity to the Fallopian canal, and resultant compression about the facial nerve. This inflammation being due to the hemorrhage into the middle ear at the time of injury.

THE MENTAL CONDITION.

The form of insanity is yet subjudice. From its course and characteristics, so far, I am disposed to call it a dementing psychosis, or what might be called a primary dementia, due to traumatism rather than an attack of acute melancholia, although the fundamental tone is decided depression. At any rate, the course of the disease will determine what it is. If the former, it is quite likely that his mind will suffer continual and persistent deterioration, and complete dementia ensue, unless medical or surgical means arrest it.

TREATMENT.

Finding the lost patellar reflexes and glandular enlargement and some irregularity of the pupils upon my first examination, I felt

justified in placing him upon experimental doses of mercury and iodide of potassium, to determine whether or not there might be specific lesions in addition to the traumatism. The mercury produced looseness of the bowels with abdominal pains, and was stopped after a few days and the iodide has been continued in increasing doses, till he is now taking 300 grains T. I. D. and no iodism has yet appeared, and there has been some improvement in his symptoms. Later, Dr. Moody has added to his treatment tonic doses of nux vomica and chloride of iron. As he seems to be improving under this treatment, we have considered it advisable to exhaust its value before turning to anything else. If, however, this plan should fail, surgical interference is the proposition of choice.

It should perhaps be added that surgery was indicated at the site of the injury when first received, but since three or four months have elapsed, and with strong suspicion of specific infection playing an important rôle in the production of his symptoms, it would seem advisable to definitely determine the value of medicine now, and if failure result, and the mental condition shows no improvement, trephining should be done. It is certain, however, that no surgical means can reach or relieve the seventh nerve if it be a fracture or depression through the petrous portion of the temporal bone, and unless the facial paralysis is due to syphilis, and responds to specific treatment, the lesion will remain unless some compensatory function is performed by the fifth or other nerves. As the fifth pair supply the masseter and other muscles concerned in mastication, very little interference with the use of the mouth is to be expected.

If, however, the facial nerve paralysis is due to extension of the inflammatory process of the middle ear, and consequent compression, it is quite possible that iodide of potassium will relieve it, or at least that time and retraction of adhesions may promote wellnigh perfect recovery. While the superficial facial muscles are still dead to electricity, yet it seems to me I can see some slight evidences of improvement upon voluntary movements.

Another important proposition is, after the thorough use of mer-

cury and iodide, if the mental disorder persists, are we to expect any improvement from trephining at the site of the skull injury? It is readily seen that this is not the seat of intelligence, judgment, will or emotion, and as the great motor and sensory areas are not involved, and no focal symptoms of the eyes indicate irritative or destructive lesions of the brain tissue about the visual centers of the right occipital lobe, certainly in close proximity to the injury, what relief can be expected from operation, even if the displaced bones can be readjusted?

Again, if apparent recovery ensue under specific treatment, what part did the fracture and the brain concussion play in the rôle of physical and psychic symptoms, and are we to expect a return of these symptoms at some future date? If the cranial bone displacement is a congenital condition, the probability of which was suggested by Dr. Moss, but which I consider extremely improbable, and the mental symptoms be due to syphilis, made kinetic by the concussion, with present improvement, we are justified in prophesying almost perfect recovery for a time, with later return of the symptoms, unless prevented by attention to specific lesions of a tertiary character.

The foregoing account of this case was written on March 27th, at which time Mr. Gentry's mental condition still showed considerable confusion, much depression, easy religious excitability and complete paralysis of the right facial nerve existed.

Immediately after the reading of the paper at the San Antonio Medical Association, he became excited, confused and somewhat noisy, greatly wishing to describe his mental and physical state to the assembled physicians, in a decidedly hysterical manner, and it became necessary to remove him from the building.

Within a few days under continuation of his treatment this excitement all subsided, and his treatment has continued along the lines previously explained, except that the iodide of potassium has been increased steadily five grains at each dose, until at the last examination, on April 30th, he was taking 520 grains T. I. D., making a total of 1560 grains per day, the largest dose of the iodide of potassium of which I can find any record in my library.

He has never shown a single symptom of iodism, and about the only complaint is a burning of the throat, at the time it is swallowed; and he also complains of some dizziness and occasionally slight nausea.

In spite, or in consequence, of this enormous dosage of iodide of potassium, the patient has steadily improved, and has gained eight pounds in flesh. His mental excitability has almost completely disappeared. He is now perfectly rational and coherent in conversation, and his appearance and conduct at all times is that of a sane man.

There is slight evidence of the return of the patellar reflexes and marked improvement in the facial paralysis, as he can now close the right eye, which he could not possibly do thirty days ago, and the facial muscles are beginning to respond to the faradic current of two cells. His improvement has been steady and really astonishing, and seems to justify the original opinion that the specific infection had much to do with his mental disturbance, which was, of course, brought on by the fall and fracture of the skull.

I had not formerly believed that iodide of potassium could be borne in such enormous doses by any stomach, but one fact is worth a hundred theories, and the demonstration of his tolerance of the drug and of his constant improvement is sufficient to challenge further consideration.

I have suspected the possibility of the iodide passing unchanged through the bowels, as he exhibits a slight looseness of the bowels, especially at night, but have been unable to demonstrate this chemically.

INSANITY AND HOSPITAL MANAGEMENT.

JNO. S. TURNER, M. D.,
TERRELL, TEXAS.

The disease insanity is as old as the history of man, and is manifested in the individual by the gross exaggeration of normal tendencies, actions or speech, ordinarily called eccentricity, or by morbid manifestations of the emotions or animal propensities.

In my opinion, Burr gives the most concise definition of the disease. He defines insanity as "a prolonged departure from the individual's normal standard of thinking, feeling and acting."

"The law assumes to define insanity; it says 'that a criminal is insane if he does an act whose nature and quality he does not know, or if, knowing the nature and quality of his act, he does not know whether it is right or wrong.'" (Church & Peterson.)

Medical jurisprudence agrees with the legal branch as far as it goes, but, from a medical standpoint, we contend that the law does not go far enough, and that the individual should not be held responsible for his acts even though he did know they were wrong, provided that his ability to act upon such knowledge had been impaired by disease.

Should the legal definition be applied to the inmates of our hospitals, we would be forced to release fifty per cent. of the present population, but the fact that they knew right from wrong would not deter them from committing dangerous and criminal acts upon society; but the loss of control of will power or inhibition, from disease, often permits these unfortunates to do violence and commit atrocities that they know at the time to be wrong in the sight of the law.

Insanity was known and spoken of in the days of Moses, and Egyptian civilization and the Israelites were warned that a visitation would be sent upon them for disobedience to Jehovah. Many of the old kings and personages of Bible history showed evidences

of mental aberration and obscessions from faulty heredity, if, indeed, they were not actually insane; for instance, Nebuchadnezzar was insane and went into the fields and ate grass for seven years. Nero, the most atrocious murderer of his day, labored under a sanguinary obscession. The Dweller in the Tombs was insane, as were many others that could be mentioned. History gives us many interesting instances of insane inheritance. Howard says in "The Perverts," that the "histories of men who have stamped their individuality on the world, show many of the traits which denote a lack of equilibrium in their mentality. Lombroso and Weir have given us a list of such men. Julius Cæsar, who was both a mighty leader and ruler and a man of state of high rank, was an epileptic. Molliere also suffered from epileptic attacks, as well as did Petrach, Floubert, Handel, Peter the Great, Paganini, Mozart, Schiller, Alfiero, Richelieu, Newton, Swift, and many other men of talent and genius.

A form of nervous instability, which, under different circumstances, might have resulted in dipsomania, affected Montesquieu, Buffon, Dr. Johnson, Crebilon, Lombardine, Thomas Campbell, Carducci, Napoleon and Socrates; Alexander died after having drained ten times the cup of Hercules.

Among the men and women who were possessed of obscessions we mention Coleridge, Thompson, De Quincy, Carew, Sheridan, Steele, Addison, Hoffman, Charles Lamb, Madam de Stael, Burns, Savage, Alfred de Musset, Pierre Dupont, Kliest, Carracci, Jean Steen, Moreland, Turner, Gerard de Nerval, Dussez, Handel, Gluck, Praga, Rovoni, Somerville, Poe and others. (Howard.)

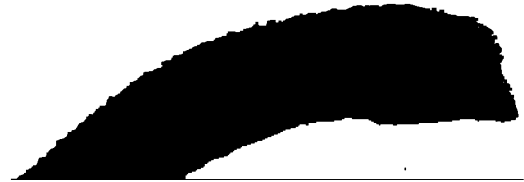
Before the sixteenth century, those persons whose mental obliquity became so pronounced that it was necessary to restrain them were said to be possessed of evil spirits and were therefore remanded to the priests for incarceration and to have the evil spirit removed by prayer, laying on of hands or beating and starving, if necessary; the satanic influence must be removed even though it required death to do it. This method of treatment of the insane was practiced to a more or less limited extent, even after the sixteenth century, at which time two men of science appeared upon the arena of

scientific research and began the emancipation of the insane from ancestral superstitions, chains, the lash, starvation and social ostracism, which had existed since the history of man, and established, after many years of hard work, the fact that every psychic disturbance had a physical antecedent, or that the mind is not a separate entity to be possessed of evil spirits, but that the phenomena of mind is but the functioning of the brain and therefore had a physical basis.

These philanthropists were Pinel and Tuke. While the fields of their action were widely divergent, yet they worked to a common end, Pinel in his native land, France, and Tuke in England.

From these two pathfinders has been evolved the science of psychiatry, and from their teaching has developed the modern alienists, bringing the more enlightened and humane methods of treatment and management of the insane. Instead of the monasteric dungeon, there is now the modern hygienic cottage, robbed of every possible suggestion of the former mad-house and converted into a modern hospital. No more chains and lashing, but, instead, the moral suasion and restraint of a well-prepared nurse, who has passed successfully the examination required after a three-years' course in a training school for nurses. Instead of being starved, to dispossess the evil spirit, the patient is given highly nourishing and easily assimilable food to strengthen their waning nervous energy and lowered physical vitality, so that the mental equilibrium can be re-established at the earliest possible time. Instead of curses or prayers, to drive out this evil obscession, we administer to them the remedies that science and experience has taught us are most effectual in relieving the nerve centers of the load of poison that has been pent up there to be destroyed, instead of having been eliminated by the excretory organs as nature designed.

We see what has been done in the past in the direction of alleviating the suffering of the most unfortunate of our defective population; now, let us make a little introspection and see what we, as a people and State have done in the past and what we should do in the future, to assist in unburdening this, the worst of all physical derangements, by furnishing them with every necessary provision



of becoming finally restored to their families and, indeed, to themselves.

We have seen that the disease has existed from the beginning of man's career upon the earth, although in a misunderstood light, and that individuals suffering from mental instability have had much to do with the molding of ideas, customs and laws in the centuries past, and at the same time given to the world and society a progeny who inherited more or less of parental instability, and in turn sent an ever-widening circle of faulty inheritance into the world.

What is our duty in the matter? First, we should have some wholesome laws restraining the marriage of defectives. At this point we are met by many difficulties and obstacles, and the question as to the right one human being has to deprive another of God-given rights, but when we consider "the greatest good for the greatest number," we must admit that it is more humane to deter one individual from performing this right than to build asylums for the many for whose faulty existence he might be responsible. It might be said that our higher civilization will, by environment and education, overcome the physical defect of the individual, to this I must demur. Like all other natural processes, there is no standing still, and we as a people are either growing more stable or more unstable, and this whirl called society and higher civilization, in my opinion, is not conducive to mental or physical equilibrium, and then when we intermix the unstable molecular action that must be transmitted by parents of questionable mental or nervous organization we are justifiable in saying, "Thou shalt not."

One may say that is a subject for the lawmaker to grapple with, and I admit that that is true, but who is to call this matter to the lawmaker's attention if not the physician? As a rule the legislator is not a physiologist, biologist or a physician, and can only learn of these sociological truths by discussing them with those who have given some thought to the subject. The old proverb that "an ounce of prevention is worth a pound of cure" is the key to this situation.

Then we are confronted with the responsibility of caring for these unfortunates after they are thrust into the world and are mer-

cilessly ostracized by society for an infirmity for which they are in nowise responsible—I refer to those who become insane from faulty heredity;—we must also care as tenderly for those who have become insane from local or acquired causes or reasons; this class, however, does not make up the great bulk of our insane population, and as a rule are subjects of favorable prognosis.

The insane population in this State has kept pace with the rapid development of the State in other respects and from a small handful of patients and one asylum located at Austin, we now have three large hospitals and the fourth one under course of construction, all crowded to their utmost capacities, and daily demands are made that can not be met. We have at this time in the neighborhood of thirty-five hundred insane persons in this State, over three thousand of whom are now within the walls of the three asylums. Notwithstanding the progress made in every other direction, our laws for the commission, admission and care of the insane have remained practically unchanged for forty years, and we are now operating as best we can under a law that was adequate for the care of one institution and a handful of patients, and they located at the capital, where the legislative and executive officers could more certainly look into their needs and provide for the same.

It is a great responsibility to look after a large hospital for the insane when all conditions are favorable, and when unnecessary encumbrances are to be reckoned with, it proportionately increases the responsibility.

Texas should have a complete revision of her insanity law, with a view to meeting the demands of the ever-increasing population. Our defective population should be classified in institutions best adapted to their several needs; for instance, where is the economy or good judgment, not to say the humanity, in keeping weak-minded children and dotards—old men and women—who are only defective mentally as well as physically through age, in an institution where strong and expensive restraints must be maintained? What they need is not restraint but, in the first class, scientific training, and in the latter, careful nursing and attention in good,

comfortable cottages with wide and shady verandas, warm in winter and cool in summer.

Children suffering from arrest of mental development offer as good results, when properly treated, as do any of our defective population, which treatment they can not, in the nature of things, get in an insane hospital.

The epileptics will soon be placed in a separate institution. Then the criminal should be separated from the innocent insane, as they are a great menace to the ordinary insane and impress upon them more indelibly than ever that their delusional notions of persecution are true and that they have been committed for some crime, as they know that others among them have been so committed, and why not they? as they have a more or less distinct remembrance of having been arraigned before a court and jury and of having to plead "guilty or not guilty," the charge to and verdict of the jury, etc., etc.

A hospital for the immediate reception of every case of acute insanity should be established and every possible opportunity offered recent cases for recovery.

The other institutions should be maintained for the care of the chronic insane and should receive all cases as soon as they become chronic.

Jury trials, by all means, should be abolished, and, instead, have a board composed of the county judge and two reputable physicians appointed by the commissioners court, to visit their homes and in a scientific way pass upon the sanity of a person suspected of being insane. Require each county commissioner to report, from time to time, all defective persons in his district. This would at least give us a more accurate system of vital statistics.

Have a State board or commission who should have sole charge of all the eleemosynary institutions and who would devote their entire time to such work, have that board composed of, say, three men who are especially adapted by temperament, education and training for the work; at each institution, and composed of local men and women, there might be a visiting committee, whose duty it would be to frequently visit the institution and patients, and act

in advisory capacity to the State commission; this State commission should make frequent visits to the various institutions and should make all requests upon the Legislature for needed appropriations, thus maintaining a uniformity of the same throughout all of the institutions. These commissioners should be appointed by the Governor for a period of three or more years, the Senate confirming, the commission of no two members expiring the same year; thus eliminating politics from the management of the hospitals, which should be as completely divorced as church is from state.

Have the merit system prevail in all appointments of any note; in petty appointments allow the superintendent to nominate and the board confirm, these appointments also to be made on the merit basis.

The institutions are now handicapped by having their appropriations first scaled by a legislative committee who know nothing of its needs, take it for granted that the superintendent has asked for the outside amount, and they invariably give him less than his requisition calls for, and as often injure the efficiency of the hospital, and, indeed, of the amount that is appropriated, as it is inadequate, it must be used as sparingly as possible in order to get through the year; and then, to make bad matters worse, this committee divide up the appropriation into a dozen or more heads and say to the hospital management, this amount for this purpose only, just as though the unexpended amounts did not revert to the State treasury. Often, these amounts are scaled until they are entirely inadequate for the purpose for which they were intended, and it does not matter how much unexpended money there may be under another head of the hospital's appropriation, it can not be used legally to help the appropriation that is inadequate, and thus the end sought is defeated.

Our appropriations for ordinary maintenance should be made in bulk, new buildings and items of that kind being made for a specific purpose, as is done in other States.

There is not a dollar of State money handled by any hospital officer; therefore no danger of malfeasance, and I would not have it otherwise, although we are under bond for the protection of the

State's interest in all matters coming under our supervision. Every transaction with the hospital is done by voucher sworn to by the interested party, certified as correct by the storekeeper and accountant, if it is a sale, approved by the superintendent and president of the board of managers, and then sent to the State Treasurer before a dollar can be drawn.

If we had a competent State commission, all these obstacles to hospital management could be averted, as this commission would be in position to more readily secure all the needed reforms mentioned, as well as many others, for instance, a uniform system of statistical record-keeping should be adopted and the necessary amount and character of help provided to keep up such system. As it is now, each hospital adopts its own method of keeping statistics and records, except a general record of patients that is required by law, which is very meager. Each change in the management of the hospital is likely to, and usually does, bring about a change in its system and method of management. This is not only detrimental to the general welfare of the institution, but is equally so to the individual welfare of the patients, as every change of any moment is readily noticeable in the condition of the patients, they being perfect barometers of their surroundings.

The positions on the medical staff should be made statutory and more permanent, and sufficient salary paid to induce the best talent in the profession to accept these positions, and after doing so they should be protected in their position so long as they are efficient and are on good behavior, for it requires time, work and experience for one to develop into a successful insane-hospital physician, even if he has the proper adaptation, and it is by no means every one that is adapted to this work.

I had the pleasure of visiting twenty-one of the best institutions for the care of the insane in the United States last summer; found in New York—in my opinion the most advanced State in the Union on hospital management—that the law does not permit the expenditure of less than $550 per bed in establishing a new hospital. We spend from $140 to $200; the consequence is, we have trouble with our buildings within a few years; they seldom do.

We have the grandest State and the noblest people on the globe, and it is not my purpose to criticise either, but in justice to both I feel it my duty to point out the needs of our hospitals and I have the faith to believe that when our lawmakers know the needs of the eleemosynary institutions, that they have the abundant patriotism to provide the means.

In New York they spend from $180 to $208 per capita for ordinary maintenance, and declare that less than that amount is inadequate to properly provide for their patients; we spend from $122 to $140 and complain of extravagance. They spend a little over $11 per capita for medical services; we spend less than half that amount. They have legal provisions that permit their patients to be admitted into the proper hospital immediately; we confine ours in jails with the meanest criminals. They have detention quarters for infectious or contagious disease; we have none. They transmit their patients to the hospital like sick persons; we like criminals,—trained nurses going for their patients, while the county sheriff brings ours, often in chains. I have seen patients admitted into our hospitals suffering from delirium in consequence of an attack of puerperal fever or acute nephritis. It is needless to say that they lived but a few hours after admittance and that if the proper medical commission had have made the examination, instead of a jury, that the patient would have never been forced to undergo the ordeal of being transmitted by the sheriff over a very rough road, as was the case with one patient, to an insane hospital, to die within twenty-four hours after admission. Yet, right here permit me to say that our hospitals are in better condition today than they have ever been in their history, due largely to the impetus given by the strong personal interest manifested in them by Governor Sayers.

All the States that have had proper attention given their insanity laws have an attendant to each six or eight patients; in fact, I saw in a violent ward in an Illinois asylum, six attendants caring for eight violent women. We have one attendant to each sixteen patients. They require attendants to work from eight to twelve hours in each twenty-four; we require them, through necessity, to

work from thirteen to sixteen out of the twenty-four hours. They have training schools for nurses and require their "charge," or "head" nurse, to be a graduate of one of these training schools; our attendants, as you can readily see, have no time to attend training schools. They have attendants, as well as officers, who spend many years at their chosen work in one hospital. I saw one female attendant in New York State who had been in one position for thirteen years; it is the exception in the history of our hospitals to find an officer in the same hospital over four years, or an attendant in the work over twelve months; the changes in administration or meager salary is accountable in the first instance, and long hours and short pay the reason in the second place; for after a time the nervous strain on even strong persons manifests itself and they lose their positions in consequence of becoming incapacitated for the work, due to the naturally trying position that they must occupy, and especially so with the long hours required.

Our number of attendants is by half too small, the pay inadequate to secure the best assistance, and the hours of service entirely too long. Common judgment teaches that one attendant to sixteen insane patients is an inadequate number. For thirteen to sixteen hours of work they receive fifteen dollars per month as new beginners, and up to twenty-five dollars when they become more proficient, twenty dollars being the average, night attendants getting twenty-five dollars per month for fifteen hours' work, one night attendant caring for from seventy-five to one hundred patients.

It is not only an injustice to ask people to work such long hours, but it is an injustice to the patients to have them do so, as they can not possibly be as efficient as if they had more recreation and shorter hours; the consequence is that it is an exception to find an attendant in a Texas hospital who has been in the service longer than one year. These frequent changes cause us to have to manage the hospitals largely with inexperienced help all the time, which also is very detrimental to the welfare of the insane. Anything that disturbs their quietude, especially when they begin to improve, is detrimental, and to have inexperienced help all the time, and a

general change of officers and policies every two or four years, it is remarkable that we have the rate of restoration that we do.

We should have two reliefs, so that neither would be required to work longer than twelve hours. The remuneration should be such that the most competent help could be secured; then a training school for nurses should be maintained at each hospital and every one directly in charge of patients should be required to attend and become familiar with the peculiarities of the various forms of insanity from a scientific standpoint; they should understand how to be tactful with those suffering from hallucinations, delusions or illusions, and if found not to be adapted to the work—and here let me say that not more than one person out of every ten is adapted to insane hospital work—they should be advised to discontinue it at once.

There are two methods of management in vogue in some of the States I visited that I desire to mention in order to condemn; they are: first, what is termed "duality in management"—the medical supervision under one superintendent and the business or financial management under another superintendent, each having absolute authority in his department; and, second, "the county care," which is much after our poor-farm methods, except it is an improvement on the same, yet it is an undesirable arrangement, in my opinion, for the proper care of the insane, there being many reasons for condemning both of these methods.

If we hope to bring our State abreast of the times in this particular, we must ask our lawmakers to assist us in doing so, which they will no doubt do, when they properly understand our needs.

DISCUSSION.

DR. JOHN T. MOORE, Galveston: I have been very much interested in this paper, and desire to say a few words in regard to that part of it in which the author spoke of patients being sent to the insane hospital or asylum who ought, first of all, to be treated in general hospitals and properly examined by medical men. I remember two or three cases of patients who were suffering from mania and were not proper subjects for the asylum. They were sent to the asylum on account of bad treatment. Many times these cases die on the road. If patients of this kind had first

to be seen by competent medical men and passed on by medical juries, such mistakes could be avoided.

DR. WALTER SHROPSHIRE, Yoakum: I rise simply for the purpose of thanking the author for his valuable paper. He has opened up a field worthy of thought and careful consideration. I am not competent to discuss the paper—I leave that to the insane doctors. I only wanted to express my thanks.

DR. J. J. ROBERTS, Hillsboro: There is one matter that I think this Association ought to continue to look after until it has been corrected. I refer to the subject referred to in the paper presented by yourself, Mr. Chairman, last year, namely, the method of trying these insane people. The Association should never let up until the barbarous and inhuman way in which the insane are tried has been altered.

DR. F. S. WHITE, Terrell: Having been for a number of years associated with a State institution, I beg to say that I have appreciated the paper very much. Every one who has had such experience knows the importance of the points the author has brought out. I do not want to discuss the paper at present, but I want to commend every statement the doctor has made. Texas has made considerable progress in the care of its insane, but it is still far behind Eastern and Northern States. This remark applies especially to the matter of buildings. Instead of having all the inmates gathered together in one large building the modern system consists of a number of cottages with a large farm-garden and workshops where the insane people can be put to work. The greatest aid in the treatment of insanity is giving the patient physical exercise, and instead of confining them to white walls and polished floors they should be brought as much as possible into contact with mother earth. The expense is less, and the object for which such institutions are established is better attained. Another thing is necessary, and that is the elimination of politics from the management of these institutions. As long as politicians have power to control the physicians and superintendents of these institutions and otherwise direct their affairs they will not attain the end for which they were established. Merit should obtain in every respect. This is particularly necessary in connection with the treatment of insanity, for it is a peculiar branch of medicine. It requires close and steady application. The general practitioner meets an occasional case, but he is not expected to treat it. He refers it to an institution where there are men who have given special attention to these diseases. Therefore, it is desirable that the men in these institutions should be the proper men for their respective places, and that they should not be liable to change or dismissal at the whim of some politician. The greatest contributory cause to the production of insanity is the hereditary tendency, and the institu-

tions of this country and the laws as now enforced tend to foster that tendency. An insane man is sent to an institution. He is patched up. He is discharged, and goes back to his family, and begets children with the same hereditary make-up. If laws were passed which would prevent the marriage of insane persons then we would commence to limit the increase of insanity. Until something of that kind is done insanity will continue to increase in this country. That is the only way to strike at the root of the evil. I would like to discuss the paper further, but at present that is all I have got to say.

DR. J. C. CARLETON, Bonham: I would like to ask this one question: What is the ratio of insanity between male and female, and what effect has the heat of the Southern climate on the mind of the female?

THE CHAIRMAN: Personally, I want to lay emphasis on the pleasure with which I have heard the paper, and my appreciation of the many points of practical usefulness it contains. The suggestion that persons with disturbed mentality should be carefully examined and kept under observation for some time before being sent to an asylum is one of which I highly approve. I remember one case of a gentleman who was committed to an asylum on insufficient evidence, and I cannot but think that had he been taken for a time to a detention hospital the results would probably have been more satisfactory. There are no doubt a great many other cases of the same kind.

DR. TURNER, in closing, said: There are many things connected with this matter that are not so thoroughly understood by the layman as by members of the profession; but there is one fact in connection with our present system that I must acknowledge, and that is the strong interest our Governor has taken in these institutions. There is no doubt whatever that the institutions of the State generally are in a better condition than ever before. There has been a marked improvement since Governor Sayers took office. He has given us all the aid he could both personally and through the Legislature. In particular he has done everything he could to eliminate politics from the management, and he has encouraged the Legislature to give us liberal appropriations. The institutions, in fact, are in as good a condition as the laws will permit. The Governor's suggestions in regard to health boards are along similar lines. We hope in time to get all the things we are striving for, but there is only one way to do so, and that is for every member of the profession to take the matter up personally and make appeals to individual members of the Legislature. We really do not know where insanity is going to stop unless we take measures to cope with it. I thank Dr. White especially for his comments. Every physician who is acquainted with the subject knows what our needs are, and ought to assist in securing them. Dr. Carleton asks what effect

the climate has on the sexes. In reply, I have to say that I have not been able to notice much difference. The rate of admissions is very much the same. Neither have I been able to recognize much difference between the climate of Texas and those of Northern and Eastern States. So far as percentage goes, they are nearly the same. This matter was discussed at a conference on insanity last year, and this was one of the facts brought out.

THE CRIMINAL INSANE.

G. H. MOODY, M. D.,
First Assistant Superintendent, Southwestern Insane Asylum,
SAN ANTONIO, TEXAS.

There are confined within our Texas asylums today about three thousand patients. Through the wise foresight of its individual members, and guided by the counsel of the best medical thought of our great State, our two recent State Legislatures have provided for an institution for the maintenance and treatment of our epileptics separately. This institution, when completed, will stand throughout endless time as a fitting monument to the memory of those who voted its existence, as well as to those who are supervising its construction,—not so much on account of its adaptation in design and construction to the purposes for which it is intended, which within themselves command much commendation, but rather more on account of its imperative need in order that the epileptics, the majority of whom are so disagreeable that they can not be kept with other patients except with great difficulty and detriment to all, may be isolated and more satisfactorily treated.

Of the whole number of the insane population there are at least eight per cent., or about 250, who are known as the criminal insane. This term is not meant to signify any one clear-cut, classified form of insanity, but it is merely an underlying tendency, which, in some insane individuals is ever present, which may exist in any one of the various forms of insanity, and which is ever ready to manifest itself whenever the circumstances and environments conduce to its precipitation. It is probably enough to say that, associated with whatever form of insanity in which it may be found, it is a morbid tendency which ever exists in some individuals, which is due to brain disease or defect, and which renders the patient constantly dangerous, or constantly liable to become dangerous, to public safety.

This class should be eliminated from our present asylums and placed in an institution especially constructed and equipped in accordance with the necessities of their demands. This institution should be known as the State hospital for criminal insane, and should be as centrally and healthfully located as possible, upon fertile land, and should be built upon the latest approved plans with reference to hygienic conditions, and so constructed and equipped that facilities for occupation may be had for all, and that the possibilities of escape may be reduced to a minimum. It should be the purpose of this hospital to care for all insane persons, convicted or unconvicted, who are charged with crime, whether the disease of insanity is known to exist at the time of arraignment or trial, or subsequently develops while undergoing sentence. And from the time of the completion of this hospital, our laws should be so amended as to provide that commitment by the courts should be made directly to this institution in all cases where the plea of insanity prevails as a defense for criminal acts, and that all the insane now confined in our asylums in whom can be discovered criminal tendencies should be immediately transferred to this institution, as well as all those who might develop insanity in our State reformatory and penitentiaries. And it should also provide that the management be required to retain indefinitely this latter class, even after the expiration of their sentence, or until they shall have fully recovered.

All individuals meeting any one of the above conditions should be promptly committed to this institution for treatment, and kept there securely until they shall have become restored to health beyond all question and capable of normal moral citizenship, or until they shall have become harmless dements, when they should be transferred to one of the present asylums.

The two fundamental reasons for the existence of insane asylums are the welfare of the insane and the protection of the public. In support of the necessity of these changes whereby this class of the insane may be thus isolated and the efficacy of all our asylums improved thereby, there are many good reasons to be offered.

In addition to what drugs we may be able to give them with

benefit, and other adjuvant therapeutic measures, such as electricity, massage, scientific bathing, etc., which we may be able to apply when proper equipments will permit, there is one other measure which is constantly receiving increasing attention, and which is sure to yield favorable results in proportion to the extent to which it can be applied, and that is occupation, which implies exercise, and which should be had in the sunshine and fresh air as much as is practicable. Through its favorable influences on sleep and appetite especially it conduces to improved physical health, one of the first advance steps desired in the hope for mental improvement. There is nothing more universally and wholesomely accepted by them than occupation. They constantly beg for it and esteem it a great favor when provided for them. It diversifies their daily experiences and takes them from their morbidly acting minds, their delusions, illusions, hallucinations, suspicions, sorrowful remembrances and various eccentricities of thought, and helps them to forget temporarily their loss of liberty.

As it is, we not only can not take the great bulk of harmless patients out as much as is desirable, but are often forced to place some of the worst criminals in solitary confinement, which is not only detrimental to their treatment, but is most horrifying punishment to them, notwithstanding the lack of such intention, but which often becomes unavoidable by reason of the urgent necessity for the protection of all and the safe keeping of such patients, thus militating against the application of one of the best therapeutic measures for the treatment of all classes.

Aside from its decided commendable therapeutic feature, there is an economical feature worthy of much consideration in connection with this question of occupation. The few criminals in solitary confinement, and the other criminal class, all of whom do nothing for their support by reason of their danger to each other and to the public, can be taken out and given occupation and could be protected from the constant dangers of doing violence by reason of better equipments and especially qualified help; and the results of their labor could become in a measure remunerative, thereby relieving approximately the already over-burdened tax-payers of a

class of delinquents who are amply able in every particular to maintain their own support themselves.

Then, with this class eliminated from our asylums, the inmates could be taken out in great numbers and with small help, and various kinds of labor provided for them aside from farming, such as could be done in various workshops, with which every institution should be provided, where much of the material needed for running the institution could be made.

Thus it is plain that by isolating this criminal class measures now wholly impossible can be put in successful operation, which will conduce greatly to economy, as well as to the increased comfort of all and to the final restoration of many.

Then there is a humane consideration which probably merits more attention than any other point yet mentioned: to have a few criminals mixed up on the same wards and in the same rooms with the great bulk of our insane population is not right. Most all of these patients come from the moral element of our country, and they are men and women, young and old, who are innocent, submissive and law-abiding, and are by nature, training and mental construction as sensitive to indecencies and immoralities as are sane individuals. These better elements in them should be nurtured and developed rather than ignored. They constantly write letters home asking what crime it is they have committed that they must be locked up with such people, and constantly make personal pleas begging protection from the violence of certain patients who have previously assaulted them. "Because I was born unfortunate and diseased I have to be kept locked up with some of the most indecent and dangerous scoundrels on earth." "Just because I am unfortunately nervous I have to stay here constantly, even in the same wards and same rooms, with women with whom my people outside would not be caught for one moment."

Expressions like these are heard almost daily. This state of things should not be. It develops still more the perverted tendencies in the young. It makes the viciously inclined, both young and old, more vicious. It increases and confirms in many the already existing opinion of injustice being done them, and justly

makes them revengeful and rebellious. It increases still more the depressed feelings resulting from imaginary depravities.

Now comes the consideration of the all-important question: public safety. Through a wise provision of our laws we are forced to pay taxes to be utilized for the protection of all against would-be offenders. Then in return we should have assurance that we will receive protection. Under the present system we all know that our asylums do not give us absolute protection, nor can it be made to do so more effectually without unnecessarily inflicting untold injustice upon the great majority of the unfortunates.

Animated by an innate beneficent spirit ever present in man, and enlightened by modern conceptions of the true nature of insanity, our alienists and asylum physicians all over the country are wisely advocating non-restraint of the insane and the elimination, as nearly as possible, of all appearances of asylums to prisons. To this end iron bars to windows and heavily barred doors have all been abandoned and wire grating and light wire doors substituted, and when sufficient help is at command doors to the sleeping rooms are entirely abandoned; all with the laudable hope to dispel the constant reminder of prison life. No one advance step is more commendable and it can be, and is being, carried out successfully in those States where the criminal insane are isolated in criminal asylums. But in our State, where the criminal insane are constantly mixed up with all others, the effort must either meet with constant defeat or the public must continue to suffer the occasional shock of violence and outrage from some escaped criminal lunatic. With this class no such attempt at the non-restraint treatment should be made. Their increased affliction does not make them less dangerous, but often more so, and our increased sympathy for them should not induce us to give them opportunities to escape, whereby they may impose their depraved propensities and destructive tendencies upon an innocent public. They should be put behind iron bars and kept there securely except when constantly attended.

By making their safe keeping more certain it will protect the public against them, and will also make those yet at liberty fear

more the consequences of their criminal acts. It will also lessen the constant multiplication of their kind until public sentiment becomes molded in favor of more stringent methods for prohibiting their propagation.

Many, even outside of the asylums, know of the ease with which patients may escape, and of other means through which they may gain their freedom. One of these possibilities I have often heard them mention, and criminals sometimes rely upon it when seeking to evade their punishment for crime by the plea of insanity.

I refer to the inexcusable and barbarious practice of which many of the old States have long since freed themselves, but to which our State is still clinging, though, I am glad to say, with much less tenacity than formerly,—the practice of changing the superintendents of these institutions with every new administration, for political reasons. At the time of these changes this class of patients rely upon opportunities for deceiving the new officials into the belief that they are either restored, or greatly improved, whereby they may gain privileges through which they may easily escape.

Dr. Charles H. Hughes, of St. Louis, in the April number of the *Alienist and Neurologist,* of which he is the distinguished editor, makes the following remarks upon this point:

"The insane had better not have the benefit of the insanity plea unless they are detained long enough after acquittal to assure the safety of the community from the consequences of a possible recurrence of their malady. The law should provide for a five-years' detention in case of actual acquittal on ground of insanity."

This is an excellent suggestion and should be made a law in our State. Mental storms which we can not detect because there still exists sufficient intellect and self-control to obscure their symptoms probably often occur in some individuals. For this reason insane criminals go at large for years unapprehended. They may temporarily lose self-control and commit one criminal act and then live for years, doing well the ordinary duties of life, while still in full possession of the same criminal potentialities, ever ready to

become active in case the one necessary occasion or circumstance presents.

Insanity is variously defined. Hack Tuke thus defines it: "A disease of the brain (idiopathic or sympathetic) affecting the integrity of the mind, whether marked by intellectual or emotional disorder."

Frederick Peterson says: "Insanity is a manifestation in language or conduct of disease or defect of the brain." To decide just where sanity ceases and insanity begins is in some cases most difficult. Who is able to determine correctly in all cases the amount of sanity or insanity present and the degree of responsibility to which some such criminals should be held for their acts? Indeed, are we wholly justifiable in saying that any individual has not a faulty judgment who will so lightly consider the deplorable consequences of his criminal acts? It is not impossible that they "can not contemplate things in the bright light of calm understanding, but view them in colors of distempered feelings."

W. Douglas Morrison, of the Wandworth prison in England, says: "The criminal is the product of anomalous biological conditions as well as adverse circumstances." Still, even with these facts before us, we can not subject a more normal public to the depredations of those less normal.

Of the whole population of our country, those of us who have our liberty and are supposed to be sane, a very small minority can be said to have perfect minds. All minds not perfect are necessarily imperfect, or, in other words, defective. It consequently follows that the great majority of us have defective minds. Then, must this great majority be excused from legal responsibility? If so, there will be but few legally responsible. If not, then we have to admit that some defectives are responsible. Admitting this necessarily admits of gradations of legal responsibility. This admitted, it is plain that we should not have inflexible laws making arbitrary punishment for the same offense against all offenders alike. If one defective must hang for his crime, then it is not wrong to confine securely and indefinitely another criminal who is more defective, and to isolate him from the present asylum with

all its impossibilities for escape, and to enjoy all the associations, special privileges and gentle nursing which our present asylums are so earnestly trying to bestow upon its unfortunates and diseased?

The object of any form of punishment provided for by law is deterrent and not revengeful in contemplation. The conclusion of the greatest minds and the accumulated experiences of centuries accord to punishment of criminal acts the most effective check possible to be placed upon crime. Fear of punishment and hope of reward modify the acts of all sane individuals, and the great majority of insane ones as well. The object and hope of all asylum management is the exclusion of all vestige of punishment, but the very nature of the situation, the fact of the asylum and the disordered mental state requiring restraint, is, within itself, punishment to the patient. Moving a patient from a nice quiet ward to a violent one with closer confinement and fewer privileges is punishment, as well as is administering apomorphia, even though it is done entirely through necessity, in order that violence to others may be prevented and any degree of order maintained, and not at all with the object or desire of punishment. And in almost every instance it has a marked deterrent effect upon their conduct, and in many cases of the most dangerously insane it positively stops all attacks of violent outbreaks and wrong conduct.

These facts prove conclusively that those possessed of the criminal and rebellious tendency, even with universally admitted mental aberration, can be held in check through fear of the results of their wrongdoings. So if by isolation it should appear that there is discrimination against one class of the mentally diseased merely because its course in them takes a criminal tendency, and should create the appearance of some degree of punishment, it will be only fortunate in that it will surely induce some to hold in check their criminal tendencies.

Then let us adjust our laws and our institutions to the greatest needs of the greatest number by confining constantly and securely our defective criminals, though some of them be greatly defective and diseased, thereby protecting society against constant dangers of irreparable impositions, and posterity against endless varieties of multiplied pollutions and defects.

SCHOOL LIFE AND INSANITY.

J. S. LANKFORD, M. D.,
SAN ANTONIO, TEXAS.

That insanity is increasing to an alarming extent is beyond all question. Formerly a few dark dungeons were sufficient to house the mad man. Now, however, notwithstanding our better enlightened views, and that the broad and humane tendencies of mankind have led to the building of an almost infinite number of modern institutions until the capacity is enormous, the ever-increasing cry is more room for the insane.

Private sanataria are springing up all over the country and are prospering on account of good patronage, and many patients are cared for in their homes, and yet we suffer the humiliation and disgrace of detaining in criminal jails many innocent unfortunates because we have no other place for them.

As a nation and as individuals we are philanthropic and quick to answer the call of distress from every source, but we are confronted with the impossible, almost, in keeping pace with the growing necessity for homes for this most unfortunate class of all human creatures.

If any one doubts these statements, let him inquire of the authorities of any of the States the number of insane cared for now as compared with any given period in the past. It must be admitted that changed conditions in environment and in methods of living are largely responsible for this fearful increase in insanity. There is no sociological question of the present day of equal importance, and students of racial and national evolution and degeneration can not afford to pass lightly by such an important state of things.

It is my purpose in this paper to discuss one of the important factors in the causation of this marvelous increase in mental trouble, towit, the high pressure in the school life of our children.

The American is a composite character who seems to have been born with an inordinate desire to excel all other human creatures in everything he undertakes, and to have gathered up all of the energy of the world, but not all of its wisdom. He must erect the tallest business blocks and build the finest palatial homes; he must make the best railroad time and drive the fastest horses; he must do more work and make and spend more money than any one else; he must be everything, know everything, and stand first in it all. The inevitable result of this desperate effort to excel in the wild rush for position and money, prestige and power, is an all-consuming rapid pace of living that knows no rest and that must lead to destruction.

It is not surprising that this all pervading tendency to attempt too much has invaded our schools and has become so pronounced that we find our children burdened with a course of instruction far beyond the limits of reason—a course, in fact, that is an outrage upon the brain and nervous system of the growing child.

The good old days of simple instruction, good moral lessons, outdoor sport and natural bodies have passed away. The pupils positively look too old to enjoy play. Years ago the great problems of science were hard lessons for mature minds, but now our children are dipping deep into scientific matters before they are old enough to be certain of anything but a mother's love, and they are daily oppressed with profound problems that would stagger the average business man.

They are required to answer questions in anatomy and physiology that are too hard for medical men. They are expert in botany, and so versed do they become in geology that they can explain the formation and development of the earth from the earliest etherial state to the discovery of Beaumont oil.

Geography is followed for seven long years, rehearsing climate, soil, products and commerce and people of all the nations of the earth, and for what? History of all nations must be remembered perfectly with all the dates from Adam down to Roosevelt, and the child must be able to theorize and discuss the rise and downfall of every government that has ever existed.

Of course they have an abundance of spelling, reading, writing,

arithmetic and other legitimate studies; and they have grammar and language books with diagraming, paraphrasing and dramatizing enough to produce paralytic dementia in an adult. Music and art and all sorts of accomplishments come before the child has reached the age of accountability. If the little fellow is still able to travel and hasn't quite as many books as he can carry home to study at night and to haunt him in his dreams, he has the privilege of adding German, Spanish and French to his Latin. Philosophy and psychology are essential, and hypnotism, osteopathy and Christian Science may be included later. Millions of cold book facts to remember while the delicate structures of the brain are struggling for development, but no time for rest or for original thought, and no attention paid to the growth and care of the body.

This constant and terrific strain upon the brain of the growing child without any attention to the development of the body, and with but little care of the general health, cannot be otherwise than most disastrous. Many of the pupils, if examined, will be found excitable, emotional, wakeful, discontented and suffering often with headaches or nervous dyspepsia, the girls showing a decided tendency to hysteria, with here and there spots of anesthesia and hyperesthesia discoverable. The girls are in fact the greatest sufferers, for they are conscientious and ambitious and struggle desperately to make a creditable standing, while the boys play more, shirk their duties and quit school early.

Girls suffer great damage particularly at the beginning of menstruation. What particular morbid process is going on in the central and peripheral nerve cells and other structures we perhaps do not know, but that damage is done we have abundant evidence.

In my own city three ambitious girls and one boy were under the usual strain for years. One of the young ladies is now in a private institution in the North seeking relief from insanity, the second is in the care of a keeper at home hopelessly lost, and the third is in the asylum for life. The young man was afflicted with acute mania for a year and is now apparently well, but his future is uncertain. One of the young ladies had just "finished," but was practicing on the piano ten hours a day when she went down. These are a few

examples of the direct and immediate results of the strain upon the mind.

The indirect and remote effects are more appalling still, because a much larger number are concerned. A large number of children come out of school with a morbid condition of the brain, the whole nervous system unbalanced, digestion impaired, the will power weakened and afflicted with an incurable "hurry habit" that has been engendered in school life. Being thus hampered and not being well equipped for any particular occupation, the student starts off in life at a great disadvantage. His capital of nerve energy has not been conserved and soon becomes exhausted. He is deficient in force and power, uncertain in business, and is a prey to divers temptations, vicious habits and diseases. Then when business cares oppress or disappointment in love affairs come, or when domestic unhappiness hangs heavily upon his life, he is easily on the border land of insanity and often passes over.

If it is true that the mind is co-existent with the nervous system, even to its terminal filaments, and throughout the great sympathetic, then it is proper in the scope of this article at least to mention the direful results of this constant high pressure of school life upon the other organs of the body, which condition we might call, for want of a better name, insanity of the nervous system. So intimate is the nerve connection and so important the influence that scarcely a sound organ is found.

Unborn generations must not be forgotten in considering remote effects. All our weaknesses, springing from whatever source, must be carried down to posterity and the next generation of children will have a sad heritage to burden them in their effort to build successfully unless we correct the evils in our present methods of education.

Gentlemen, there is not the slightest question in my mind that the burden laid upon our children is far beyond the limits of safety, that it is a potent factor in the causation of insanity, and that we must lighten the weight, or that in the natural course of events effect following cause, our children will suffer greatly, and posterity will reap degeneration from the seeds we are sowing.

What can we do to save our children from this abject slavery, to promote their proper mental development, and to protect posterity?

First. Reduce the course of study.

Second. Develop the body co-equally with the mind.

Third. Classify pupils better and study individual tendencies and requirements.

Fourth. Use object lessons rather than books.

Fifth. Introduce industrial training as rapidly as possible.

It is absolutely necessary to have abbreviated text-books or to drop a number of books from the course and stick closer to the essentials. The text-book writer is a close student and a selfish specialist, and the scope of his branch widens in importance in his mind till he writes a book or series of books that is the study of a lifetime, and yet our ordinary school child is expected to master twenty such in the years of rapid growth.

A large part of the general information crowded into school life is forgotten before the child is grown and would come later in life unconsciously and without effort, and should be omitted from the course. Better physical development is of paramount importance if we would have a well-balanced life. In time gone by our children lived more in country districts under the best possible conditions for natural growth, and they grew up strong and healthy in body and mind. But now we are given more to city life with its follies and excitement and morbid development of the brain and nervous system at the expense of the body. The body needs better care now than at any time in the history of man, and should be guarded and developed as carefully as the mind. In the near future the school must be equipped with a gymnasium and all pupils be required to take the exercises, which, of course, will be wisely adjusted to each individual under medical supervision. Better classification is urgently necessary. Pupils should be classified according to disposition and aptitude, studied individually and developed in accordance with nature's gifts.

It is an agreeable change to pass from our care-worn classes to the happy groups of public school children in Washington City and watch their interesting faces and easy manner as they go from place

to place all over the city and in the country studying things as they really are, with the object before them.

They look healthy and happy and are being taught methods of observation that will benefit them permanently in the affairs of life, and they are largely free from the distressing burdens of those we have left behind.

Industrial training, perhaps, offers the best relief for the present system of oppression. We need industrial departments that will train the hands for useful occupation along the lines marked out by nature so that the pupil may be ready for immediate usefulness when school is finished.

It would not only relieve the oppressive burden of many useless books, and thus lighten the strain, but the pupil would have congenial employment in his student days and when grown would be well equipped for a successful and contented life, and, therefore, less liable to mental alienation. I would not be understood as opposing higher education or the broadest culture. Those who are capable, industrious and healthy will attain eminence under any and all circumstances, and many will stand very heavy work. I am pleading for the great majority who are struggling under impossible burdens, and urging that our schools shall be adjusted to them, and so arranged that body, mind, and morals shall be symmetrically developed, without such a terrific strain, and that they may be given training that will fit them for usefulness and make them competent, independent and contented with minds intact.

Every human creature is responsible to his fellow man in the exact measure of his influence and opportunity, but the doctor has a double responsibility in matters of education, for he follows the child from infancy throughout the period of development and he is expected to advise wisely in all things.

The physician's greatest responsibility, as well as opportunity, is in preventing disease, and there has never been in human history a danger that called louder for his beneficent aid than is found in the school life of our children today.

In conclusion, gentlemen of the Association, I appeal to you in the name of over-burdened pupils and care-worn teachers to inves-

tigate the condition of our schools, and to give this subject your best thought, and to use your influence energetically for reforms that will correct the evils of our educational methods. My intention has been not so much to suggest remedies, as to call attention to the conditions and to set you to thinking. When we have attained a system of education which shall permit and promote the natural evolution of the whole human creature without undue strain, and that utilizes the best of nature's gifts, then will we find that contentment in life will follow and that insanity in many forms will materially decrease.

Then, and not till then, can it be said that the physician has met this great responsibility wisely and that he has done his whole duty to the millions of suffering children who stand about him trembling under their grievous burdens, mutely appealing to him for relief.

DISCUSSION.

DR. JOHN L. TURNER, Terrell: I have had occasion to observe the results that Dr. Lankford has been talking to you about. It is very common with superintendents of insane asylums to find just such cases. A young lady, for instance, who comes into the institution in a high state of excitement—we very often find that she has been pushed through school studies in addition to music and accomplishments. In other words, she has been over-burdened in her tender years, when she should have been making muscle and tissue, and the brain should have been developed, not along educational lines, but along anatomical and physiological lines. In after years all these other things could be attended to. The paper was a very good one, and dealt with matters to which we should give more attention. Our institutions are becoming more and more crowded with patients of this kind, and the time is fast approaching when we will have to deal with the question in a very positive way.

DR. JOHN R. BROWN, Hutto: Dr. Lankford has sounded a note of warning in no uncertain tone. I have been teaching myself in so-called higher institutions for a number of years, and have had ample opportunity to verify what the doctor has said. There is one line of cramming that is particularly pernicious, and that is the line of music. Music is considered a kind of play, but it is play which is particularly debilitating to the growing mind. Those of you who are familiar with Tolstoi's Kreutzer Sonata know that the subject we are talking about is illustrated in it. There we have the effects of a strong stimulus to mental exertion carried

to excess. I know of many cases which have got into asylums through too much application to music in early years—about the age of puberty. It is the apt pupil, too, who suffers most. A reform is necessary. That is clear, and if some of the frills of education could be lopped off and a more symmetrical education substituted—one that would train the pupil's powers of observation instead of cramming his or her young mind with facts that fade away like the summer's dew, we would have a healthier race and fewer of the cases of which we have been speaking. In the northern State of Minnesota the foremost educational people have waked up to a realization of the existing state of things. They have come to understand that education means an upbuilding—not a system of cramming and ruining the child's mind. Medical supervision over schools such as prevails in Chicago is also required to see that the sanitary conditions of the school rooms are satisfactory, and to see that weak and delicate children are not overtaxed. Most of us would only be too willing to assist in such work if requested to do so.

DR. R. H. RUSH, De Leon: I agree with all that has been said as to the evil effects of overwork of the kind indicated on growing minds; but there is another thing—and I am afraid it is a growing habit in this country—which brings untold misery on the human family. I refer to the use of narcotics. That is one of the things that is most apt to bring on insanity. I have had occasion to make some observations along this line. In a great many instances of children suffering from nervous headaches and a generally over-strained nervous system, it will be found that their trouble is largely due to the use of headache and analgesic powders and tablets, all of which contain opiates. The first thing the mother does when the child has a headache or is nervous is to give it one of those powders or tablets. In many instances the doctor has to ask what has been given the child, and he finds that it is one of the narcotics. Medical men owe a duty to their profession, to their patients, to the country, and to the unborn in connection with this matter. They ought to give warning through the newspapers and otherwise of the injurious effects of this habit. I do not think that this particular point can be overdrawn when we consider the immensity of its power for evil, and the actual harm that is being done by its means to the rising generation.

DR. LANKFORD, in closing, said: I have only to reiterate that I consider the matter as one of extreme importance, and that I think it would be of the greatest importance if every member of the Association were to look into the condition of the schools in his neighborhood. I thank the gentlemen for the discussion.

THE PHYSICIAN AS AN EXPERT WITNESS.

R. B. SELLERS, M. D.,
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Owing to the contradictory testimony of the medical experts in the celebrated Rice case, which has recently attracted such attention, I deem it justifiable to give my views in a short paper on the physician as an expert witness.

Very much has been written during the last decade on this class of testimony, especially by the legal fraternity, and in most instances their views were condemnatory of our profession when we were called to the witness chair as an expert.

Why such views should be entertained is readily seen when we read the court proceedings, both in England and America, in which the testimony of physicians acting as experts differ so materially as to cause the witness to be subjected to gross indignities by the opposing counsel during a vigorous cross-examination, and be ridiculed before the entire court.

The question naturally arises: Why is this difference and is there a remedy?

Medicine is a science, and those of us who are students should be familiar enough with it to give before the courts such information as is deemed proper, and in a professional way, without differing materially in our opinions of scientific facts.

To clearly understand what an expert witness is, we refer to the Century Dictionary and Encyclopedia, which says it is "a person who by virtue of special acquired knowledge or experience on a subject presumably not within the knowledge of men generally may testify in a court of justice to matters of opinions thereon,—as distinguished from ordinary witnesses who testify only to facts."

The physician who testifies that he was in attendance on the case in question, that the patient was suffering from some special disease or injury, and that he had carried out certain treatments, he is not

an expert witness, because he states facts that have occurred; but where a physician is summoned by either plaintiff or defendant to give before the court his opinions or investigations in a certain case, or a hypothetical case, as to the results in question of either medicine, surgery or chemistry, he becomes an expert.

Before going further, it might be interesting to know some of the many instances in which a physician can be asked to qualify as an expert, as: First. That of sudden death. He must examine the body, be in attendance with the coroner during the autopsy; if cause of death be unknown, he must examine the heart for organic lesion; the stomach for poisons or gross pathological conditions; the brain, to see if death be due to hemorrhage; and the kidney, to learn if it was caused by renal disease. In case of an infant, to learn if death occurred before birth or by strangulation; if during a convulsion, was it caused by poisons administered, uremia, apoplexy, epilepsy or intoxicating drinks.

Second. The effect of wounds as he viewed the body, and whether such wounds were sufficient to cause death; or, if not dead, would they necessarily be fatal.

Third. In case of malpractice, as to whether the treatment used was proper, and what would have been the results had other methods been employed.

An interesting case, in which I was called as an expert, came up in our State a few years ago. The plaintiff, a criminal, jumped from a moving train and broke his leg. He was picked up, leg set in plaster, put back on train by sheriff and taken to the place of his crime the same day of his accident. The fracture failed to unite properly. After serving his sentence, he sued physician for malpractice and the sheriff for moving him, but failed to get judgment.

Fourth. In cases of abortion, whether attempted or completed; if it was justifiable to save the mother, or if it was criminal.

Fifth. In cases of rape, after examination of the person, whether penetration had taken place, if hymen was ruptured or the genetalia bruised or torn.

Sixth. As to the use of the microscope, in differentiating certain diseases or conditions not recognizable otherwise.

Seventh. The examination of the blood, or if a stain be blood, and if human blood.

Upon this point experts have differed, some claiming that human blood can not be distinguished from that of some animals, as the dog, while others hold that the difference in the size and shape of the red blood corpuscle in man is distinctive.

Eighth. In insanity. The law in this State, as in several others, does not take the testimony of a non-expert except that of the family physician, as to the sanity or insanity of a person, though it may receive such testimony as to the actions of the person in question. See Gehrk vs. State, 13th Texas Reports, 568; Hickman vs. State, 38th Texas Reports, 191.

An important point under this head is the testimony of the expert as to the sanity or insanity of the person where his mental condition is questioned in the signing of his will. Such evidence in testamentary cases should call for the greatest caution and concern, and should only be given by alienists of pronounced standing, after a careful examination of the person in question, for often the changing of much property depends on their testimony as to whether the person was capable of making a will at that time, or if the aberration came on after the will was made.

Knowing, then, some of the points in medical science on which we may be called to testify, we ask what should be required to qualify as an expert?

In the first place, he should be a reputable physician. He should be a graduate from a recognized school of medicine. He should be a man of integrity. He should be known as a man of ability in his profession in the town or city wherein he resides. He should have made a special study of that particular branch of medical science which is called in question in that individual case; in other words, he should not be called in a surgical case unless he has more than a general knowledge of surgery, nor in a case requiring a chemical analysis unless he be a chemist; nor to pass on the sanity or insanity of a person unless he has made a special study of mental diseases. He should go to the witness chair as a man of science and truth, and his testimony should be impartial and exact,

regardless of which side he was summoned, and he should state his investigations and opinions in the case with perfect truth, and be as unbiased as the judge in giving his charge to the jury. In fact, the medical expert should share the responsibility of the case with the judge, and his knowledge of medical science carry as much weight with the jury as the judge with his knowledge of law.

His attitude as a witness should be one of dignity, and he should so conduct himself while in the chair that he would not become the target for the bar nor the laughing-stock of the court room, avoiding technicalities in his answers, using simple English instead of the Latin and medical terms which the jury will not understand.

From what some of the leading jurists in America say of medical expert testimony, one not in our profession would be led to view us as a body of liars and wreckers of truth when in the witness chair.

Mr. Clark Bell, a lawyer of New York City, in speaking of this subject, says: "It may be fairly asserted, juries almost entirely disregard it, especially when the views of medical experts diametrically oppose each other, on what seems to the jury the same state of facts. The whole subject has fallen into disrepute with the bench, the bar and the general public. This is a great calamity, a public misfortune, but it is an undisputable fact."

Hon. J. W. Goff, of New York, in an address before the Medico-Legal Society of that city, says: "The most important medico-legal question of today is that relating to expert testimony in criminal cases. At one time, both judge and jury gave most serious consideration to the testimony of experts, who by their studies and researches and devotion of their lives to the pursuits of science, were regarded with profound esteem and respect.

An impartial examination and candid expression will show a very different standard of our regard for expert testimony today. Its value is certainly very much depreciated, and its reliability is openly scoffed at. The increasingly large fees paid to experts by the State and by the defendant, and the advertisement given by the universal newspapers, are such rich prizes that the crude thinker, the pseudo-scientist and the charlatan forge ahead in such numbers that the

real student, the unostentatious and unassuming man of real science is lost to sight and fame."

Judge Brewer, of the Supreme Court of the United States, says in a letter: "I agree that some reform is necessary; that unless something is done the whole matter of expert testimony will become a disgrace to the profession."

Judge H. C. White, professor of medical jurisprudence in the Cleveland Medical College, says: "The partisan expert witness, and the facility for securing his service, furnishes a serious menace to the certainty of justice and is derogatory to the dignity and usefulness of the medical profession."

In quoting from these gentlemen, we of this Association, a representative body of our profession in this State, know the sorrow such words cause; for anything affecting the honor and integrity of our profession should cause each man here to bestir himself and become more determined to eradicate such harsh judgment.

While the condition of affairs as given above may exist in the East, and medical expert testimony be held in disrepute, I feel sure such is not yet the case in this State. We know that unless our profession is perfected by stringent laws to uphold its dignity that as our State advances in commercialism and wealth, the opportunity for corrupting medical testimony will grow greater each succeeding year.

We know full well that partisan experts can be secured now, and it is one object of this paper to suggest a reform, an amendment of our laws which will do away with charlatans and men who can be bought, and place again the medical man in the high esteem of former years, when called to the witness chair.

There are two sides to this question of corrupt testimony. There should be as much censure charged to the legal profession as to the medical, for the opprobrium that has fallen on medical expert testimony. It is natural for the counsel on each side to want to win their case; they are paid for it; they take every advantage that is offered to bring out testimony that will refute that of the other side, and tangle the opponent's witness in the cross-examination,

oftentimes to such an extent that in his nervousness he will contradict his former statements.

The attorney will naturally summon as an expert the physician whom he thinks will do his side the greater service. He will tell his witness his side of the case, prejudicing him in his favor and causing the expert's testimony to become partisan.

And, be it said to our shame, that there should be men in our profession who have become so low in medical ethics and so forgetful of professional honor, that they will go on the witness stand and break their oath to tell "the truth, the whole truth, and nothing but the truth" to the side who will give them the most money, as was recited in a case by Recorder Goff.

The present system of permitting each side in a case to select an expert is most unsatisfactory. Even should capable men be employed, under this system, either side may withhold some important point of their investigation, fearing that it would damage their side of the case, or not impart their findings without a direct question from the other side, knowing the experts of the opposing side has as much opportunity of learning the facts in their investigation as did they.

That a reform is needed on all these lines can not be gainsaid by any one.

It seems to me, then, a feasible plan that our laws should be so amended that the judge, after a conference with the counsel on each side, should appoint one or more capable physicians to act as experts, whose duties should be to make a thorough and scientific investigation of the case, and come to an agreement as to their findings and opinions, and when called to the witness chair give an unbiased and impartial testimony.

And it should be the object of the legal fraternity to work in harmony with our profession, giving as much labor and expense as does the physician, to get at the truth in the case. A counsel of experts so appointed by the court would soon cause their influence for right to be felt. The judge would respect the testimony, which is now so often held in disrepute; the bar would no longer try to combat, break down and degrade the witnesses; the jury would be

compelled to render a verdict for justice, and our State would reap the reward of good government.

These suggestions will naturally cause us to think, What compensation should the expert receive? We ask, Shall he not be paid more than the ordinary witness? Shall he give to the court his knowledge of medical science, the results of hours, days, or weeks of tedious research and labor on the case in question, the taking away for an indefinite time from his professional duties, all for the court's asking, without pay other than that which goes to an ordinary witness? Has the law of our State the right to demand of a physician a surrender of his knowledge—which is his personal property, costing him perhaps far more than the farm of his neighbor—in a court of justice without proper compensation, any more than it has the right to demand of his neighbor a surrender of a portion of his crop to pay for a case in court, in which he has no interest? Yet, in this State, and also in Alabama, this very thing is asked, yes, even demanded, and a physician so refusing to give his testimony can be sent to jail for contempt.

We think this is asking too much of our profession, and it should be remedied along with the other evils just spoken of.

This Association should endeavor to have a suitable bill drafted and presented to the next Legislature, and labor earnestly to have it become a law; said law providing for the appointment of one or more capable men as experts—as the case may demand—the appointment being made by the district judge in such cases, when expert testimony or investigation is deemed indispensable, that said experts be paid a reasonable sum, according to the extent of their labors, from the State's funds, said sums to be fixed by the court wherein the case was tried.

If these two points should be embodied in our statutes, they would work out a great good for the profession in this State, in the appointment of capable physicians as experts, removing the possibility of charlatans and partisans from being called to the witness chair, and taking away the odium that so mercilessly and unjustly besmirks the fair name of our profession, and places a stigma upon the men who testify for the principles of scientific medicine.

DISCUSSION.

DR. F. O. NORRIS, Eagle Lake: I have enjoyed this paper very much. I think it moves in the right direction. The definition, however, that the gentleman gave of expert testimony was a little different from that which I have been in the habit of hearing. It means, as I understand it, that it must be testimony based on practical experience as distinguished from knowledge gained from the books. I have heard men testify in death cases who did not know where the apex of the heart was. When called upon to testify as experts we should say that we are not experts unless we have had some exceptional experience. There would be no disgrace in saying so. As to the appointment of experts, I do not know that the change suggested would meet the difficulty. There ought to be regularly educated experts, and it should be the duty of the court to call them when their testimony is required. These experts ought, if possible, to be paid annual salaries. Some arrangement of that kind, as it seems to me, is necessary to do away with the existing anomalies and scandals.

DR. M. M. SMITH, Austin: I agree with the author of the paper and the gentleman who has just spoken as to the need that exists for a more definite understanding as to who constitute experts. But in addition, we require a law to prevent a physician from being summoned as an expert, and not paid anything for his loss of time and expenses even if he has to go to a distant part of the State. I was summoned once to appear in a case of this kind. I told the lawyer that I knew nothing of the case, that I was very busy, and that I would be pleased if he would let me off. He notified me, however, that I would be fined $250 unless I was in Caldwell the next day. Caldwell, as you know, is a considerable distance from my home, and I had to travel all night to get there. It was a case of insanity, and why I was consulted I do not know. I went to the jail and talked with the prisoner. It came out in the testimony that the negro minister wanted to talk to him about the salvation of his soul. This the prisoner did not care to do, and the minister said he was crazy. I had to travel all night home again—that is two nights and one day I was out, besides the money I had to spend, and I never got anything for it. Our laws ought to be amended to prevent abuses of that kind.

SECTION ON STATE MEDICINE AND PUBLIC HYGIENE.

CHAIRMAN'S ADDRESS.

WM. S. CARTER, M. D.,
GALVESTON, TEXAS.

In assuming the duties of Chairman of this Section, I beg to express my appreciation of the honor conferred by appointment to the position, and at the same time to congratulate the Association on the wisdom of maintaining a separate Section on State Medicine and Public Hygiene. At a time when the program is crowded with papers on subjects which are often regarded as more practical than hygiene, it might seem to some inadvisable to continue such a separate section.

Preventive medicine, however, is not an impractical subject, as some physicians seem to regard it, but one which is eminently practical. Although its development has been of comparatively recent date, its achievements up to the present time and the possibilities for the future are not exceeded by those of any other branch of medicine.

It has not been very long since the study of hygiene was regarded largely as a consideration of personal hygiene, the composition and adulteration of foods, the air, water, soil, etc. While attention to these matters promotes health and happiness, yet the fact remains that, with the single exception of smallpox, we had no rational, scientific basis for the prevention of any of that great group of diseases which we call infectious and contagious before the advent of bacteriology. Along with the rapid development of this new science during a little more than two decades, have come the greatest strides in preventive medicine. Most of these advances

have resulted from a knowledge of the specific cause of the different contagious diseases. Today sound preventive measures are not limited to smallpox alone, but are applied to cholera, typhoid fever, plague, sepsis in its various forms, tuberculosis, diphtheria and (happily for us living in Southern States) to malaria and yellow fever. Probably no advance of modern medicine has been hailed with more delight by physicians of Southern States than the discoveries of the manner in which yellow fever and malaria are spread and the certain methods by which they can be prevented.

Malaria is so wide-spread and has caused so much suffering that notwithstanding the fact that we possess a specific remedy for the disease, we are led to hope that preventive measures may ultimately be productive of more good than the curative. The practical results of prophylactic measures against malaria may not be so striking as those obtained with other preventable diseases, but it should be remembered that it is impossible to represent in figures the number of infections with this disease that may be prevented. We should also bear in mind that with the greatest care it was impossible to prevent infection with malaria before it was found that the mosquito carries the infection. On the other hand, the fact that people escape the disease when living in malarial districts under exactly the same condition as others, except that they protect themselves against mosquitoes, shows what can be accomplished by rigid preventive measures.

With yellow fever results are more immediate and decisive. The brilliant investigation of the Medical Board of the U. S. Army,[1] Drs. Reed, Carroll, Agramonte, and the much lamented Lazear, are as epoch-making in the case of yellow fever as were those of Jenner in dealing with smallpox. The results obtained by these gentlemen have been fully confirmed by the more recent observations of Dr. John Guiteras.[2]

They have not only demonstrated that the disease is spread by the mosquito, but that it is probably the *only way* in which it is spread. It is now easy to understand certain well-known facts about the spread of this disease, such as the peculiar house infection; the influence of cold in stopping epidemics; the failure of

the disease to spread in localities at high altitudes, even when numerous cases are introduced from centres of infection, etc.

Never before have the results of a scientific investigation into the spread of a communicable disease been so promptly and efficiently applied toward suppressing and stamping out that disease as in this instance. From 1853 to 1900 the average yearly mortality from yellow fever in the city of Havana was 765; for the past eleven years (1888 to 1899), it was 440. From April 1, 1901, to January 1, 1902, there were five deaths, and two of these were volunteers who submitted to experimental inoculation with mosquitoes.

Dr. Gorgas, Surgeon and Major, U. S. A., Chief Sanitary Officer of Havana, in his report for December, 1901, said. "Taking the months of October, November and December from 1890 to 1900, inclusive, the average number of deaths for those months was 144.5, the largest number being 631.

"In 1901 for the same period we had no deaths. This is the only year in which any attention has been paid to mosquitoes in connection with yellow fever. In the two preceding years of American occupation (1899 and 1900) every means known to science and which money could command, backed by unlimited military authority, was used to destroy fomites on the theory that the fomites were the means of propagating yellow fever. In 1901 the same efforts were directed to the destruction of mosquitoes on the theory that the mosquito is the only means of propagating this disease, the effort to destroy fomites having been entirely laid aside."

The results are also well expressed by Guiteras,[3] who says, "The complete control over the spread of yellow fever that the Sanitary Department of Havana has obtained this year by the enforcement of prophylactic measures that are based solely on the doctrine of the transmission of yellow fever by the mosquito, goes very far to prove that there is no other channel of communication of the disease. A few sporadic cases have occurred; some have been imported from the interior; but in every instance the propagation of the disease has been arrested. At the present writing (Septem-

ber 13, 1901), there is but one case of yellow fever in the City of Havana. At this time the annual epidemic is always at its height. I do not know of a greater victory in the history of sanitary science. Had the American intervention in Cuba done nothing else for humanity, it might well stand upon that record and call upon the coming years of the century to surpass it."

While we rejoice in the fact that epidemic diseases like cholera and yellow fever are now robbed of their terrors, and point with pardonable pride to the tremendous reduction in the mortality rates from such a disease as diphtheria, which was formerly beyond our control, it is well for us to pause and inquire if prophylactic measures are generally carried out by physicians in private practice in the management of preventable diseases.

During the first two months of the present year there were officially reported for the United States 20,044 cases of smallpox, with 615 deaths, as compared with 7,637 cases and 104 deaths for the corresponding period in 1901. This is indeed a sad comment on our methods of dealing with a disease which we boast of as being preventable!

With optional vaccination, our indifference to preventable diseases in general, and the lack of uniformity in our sanitary laws, we are too prone to neglect vaccination as a routine prophylactic measure and only carry it out spasmodically and often incompletely after an epidemic of smallpox starts. Our regard for the liberties of the individual causes us to do a great injustice to a large number of people by allowing anti-vaccination cranks, usually by means of false statements, to prejudice people who are incapable of judging for themselves of the merits of vaccination.

Contrast with the numbers just given above, the results of compulsory vaccination. In Germany, since the vaccination of infants has become compulsory, with re-vaccination at school age, the death rate has been reduced to seven per million, as compared with 309 per million under the laws of optional vaccination. In the German army, where vaccination is most rigidly enforced, there has been but one death from smallpox since 1874.

According to the vital statistics of the census returns, there were

35,379 deaths from typhoid fever in the United States in 1900, while the number in 1890 was 27,058. This increase is out of proportion to the increase of population, notwithstanding the great reduction in mortality rates which has followed the more general use of cold water in the treatment of this disease. What is the cause of this prevalence of typhoid fever? You may answer that it arises from conditions attending the rapid growth of this great country and which results in the pollution of the water supplies to large cities as well as small towns; that the spread of this disease by insects has been overlooked until quite recently; also that many mild cases are not treated. We will grant all this, but back of it all, are the general medical practitioners—the physicians who attend cases of typhoid fever—doing their whole duty? Do they see that the discharges by which the disease is communicated from the sick to the well are properly disinfected in each case they attend? If family physicians were doing their entire duty in this regard, would the disease be on the increase? If we look at this matter squarely, I fear we will be obliged to answer in the negative. Physicians in private practice are too prone to overlook the duty they owe to the well in their concern and attention to the sick. While our first duty is to the sick, we should not neglect prophylactic measures to prevent the spread of disease to the well.

There is no disease in which preventive measures are more commonly neglected than in the case of tuberculosis, and there is no disease in which there is greater need of care in this direction. The United States Census Report for 1900 states that there were 111,000 deaths from tuberculosis for that year. This, however, does not represent the total number, as only one-third of the entire population is included in the registration area, *i. e.*, States and cities having reliable mortality records. Taking the mortality rate (190.5) per 100,000 in this area and applying it to the entire population, it is found that there were 145,000 deaths from tuberculosis in this country for 1900, as compared with 154,000 for 1890. It might be contended that this estimate is too high, as the registration area includes mostly the urban population, while the non-registration area represents largely the rural districts. Against

this argument it may be stated that the total number of deaths recorded from all causes for the non-registration area was 526,425, although the population was nearly two-thirds that of the entire country (over 47 millions), while the total number of deaths from all causes in the registration area was 512,669. The latter only represents a little over one-third (28 millions) of the total population. It is quite evident from this that the vital statistics of the non-registration districts are unreliable, and it is entirely safe to say that there were approximately 150,000 deaths from tuberculosis in the United States every year from 1890 to 1900.

We can get a beter idea of the significance of these figures by comparing them with other great losses of life. It is estimated that the total number of lives lost on both sides during the great Civil War from 1861 to 1865 amounted to three-quarters of a million. It will be seen, therefore, that the number of deaths from tuberculosis in this country between the last two census enumerations (1890-1900) was twice as great as the total number of deaths from all causes on both sides during the war between the States.

In an excellent article published last year on the prevention of yellow fever,[5] Drs. Reed and Carroll have collected the statistics of all the epidemics of yellow fever in this country from 1793 to 1900, and they find that the total number of deaths was about 100,000. In other words, the total number of deaths from yellow fever for over a century only amounted to two-thirds of the number of deaths that occur from tuberculosis in this country every year.

At the present day no one will deny the infectious nature of tuberculosis. It is equally well known that the bacillus of tuberculosis does not thrive and grow well outside the animal body. It naturally follows, then, that every case of tuberculosis is caused by the germs given off by some previous case of the same disease either in man or the lower animals. If any one denies the communicability of this disease, he must first disprove these statements.

It is difficult to understand why physicians who use reasonable prophylactic measures in dealing with diphtheria, scarlet fever, typhoid fever, etc., should not be just as careful to prevent the spread of tuberculosis. They are often entirely indifferent to the

prevention of this disease, which, according to the last census reports, kills as many people as all other common communicable diseases put together, if we exclude pneumonia.

There are some who admit that the disease is infectious, but they contend that it is not very communicable. This is probably because a prolonged exposure or repeated exposures are necessary to develop the disease. No one would assert that tuberculosis is highly contagious, *i. e.*, directly contagious in the ordinary use of this term. It is probably better to use the term communicable instead of contagious in order to avoid confusion in this matter. If the disease is *not* communicable, then it remains for those who advance this argument to show that tuberculosis may develop in some other way than from the germs given off by tuberculous patients. If it *is* communicable, then we should use common sense methods for destroying the germs as soon as they are given off from every patient suffering from the disease, and thus prevent their dissemination.

Since we know pretty well how the disease is conveyed from the sick to the well, one would naturally expect that every effort would be made by physicians and by people generally to check its spread. It is surprising to see how little attention is generally paid to this matter. From the inquiries of Dr. Knopf[6] into the present status of the preventive measures against tuberculosis in the United States, we learn that only in fourteen States of the Union are there any laws to prevent the spread of bovine tuberculosis and providing for the dissemination of circulars of information concerning tuberculosis in man. As a matter of fact, systematic efforts toward the prevention of the disease are actually only carried out in a very few of these States. Dr. Knopf further addressed letters of inquiry to the health authorities of forty of our largest cities, and one-third of those replying stated that nothing whatever was being done by these municipalities toward the prevention of this disease.

Those who have followed the pioneer work done in this direction by the Board of Health of New York City will recall the antagonism and harsh criticism which were offered at first. This feeling has gradually changed as physicians and the people have come to understand the methods better, and today thoughtful men will com-

mend rather than criticise the work of these progressive and practical sanitarians.

Others will present to this Section important facts concerning the spread and practical methods of preventing tuberculosis. I trust you will pardon me if, instead of attempting to review the year's progress in sanitary science, as is customarily done in the chairman's address, I call your attention briefly to some facts concerning the viability of the bacillus of tuberculosis outside the animal body.

THE VIABILITY OF THE BACILLUS OF TUBERCULOSIS OUTSIDE THE ANIMAL BODY.

There is a general impression among the medical profession that the bacillus of tuberculosis loses its virulence soon after it is given off from the diseased tissue. The conditions which cause this loss of pathogenicity are, (1), the putrefaction caused by other bacteria commonly present in sputum and other tuberculous discharges; (2), the dessication of these discharges; and, (3), the influence of light, especially sunlight.

Concerning the influence of putrefaction, Baumgarten, Fischer, DeFoma and Falk[7] stated that tubercle bacilli are killed by putrefaction in from eight to ten days.

Schill and Fischer[8] deny this and find the bacilli virulent after exposure to putrefaction for forty-three days. Koch agrees with the latter view. Cadéac and Malet[9] found that the tubercle bacilli contained in pieces of meat which were exposed to air and water and allowed to putrefy, were still virulent after 120 days and when buried in the soil were virulent after 150 days.

That putrefaction, if sufficiently prolonged, lessens the virulence of the bacillus of tuberculosis there can be no doubt. All investigators agree on this. Voelsch[10] found tubercle bacilli present in sputum by staining them after it had been allowed to putrefy for six months, but animals inoculated with this sputum did not develop tuberculosis. The fact that tuberculous sputum is still capable of causing tuberculosis in animals after it has been

kept moist and allowed to putrefy for six weeks, shows that the slight putrefaction which occurs under ordinary circumstances before sputum dries, is not sufficient to make the bacillus of tuberculosis innocuous.

As to the influence of *dessication* upon the vitality of the tubercle bacillus, experiments indicate that these germs are not so easily killed by drying as are most of our pathogenic bacteria.

Sawitzky found that sputum dried on linen lost its virulence after two and one-half to three months, but other observers have found the bacilli active and capable of setting up the disease in guinea pigs after longer periods of drying than this. Sormain found sputum virulent after four months; Schill and Fischer after five and six months; Strauss after six months; Cadéac and Malet found that tuberculous sputum which had been dried and reduced to a powder remained virulent for four and five months. De Toma found tuberculous sputum virulent after ten months when dried at a low temperature (25° C. or below), whereas it loses its virulence in less time if dried at a higher temperature.

Büchner (quoted by Harrington in Practical Hygiene) found the bacilli of tuberculosis present and active in the dust of a room one year after it had been occupied by a consumptive patient. The observations which show the effect of drying for the longest time that I have been able to find, were those of Stone.[12] He allowed sputum to dry for three years, and at the end of that time found the tubercle bacilli not only stainable, but virulent for guinea pigs.

When we stop to consider how soon the sputum dries up and becomes reduced to a powder as it is commonly disposed of by consumptives, it is not surprising that the dust of rooms occupied by tuberculous patients should be a source of danger for months, and even years.

This is true not only in the houses of the ignorant and uncleanly, but also in the homes of the better classes when the sputum is allowed to dry in handkerchiefs. This recalls the experiments of Cornet,[13] who found tubercle bacilli present in more than one-third of 147 samples of dust collected from general hospital wards, asylums, and from private houses. Of the guinea pigs which did

not die of sepsis, 47 per cent. of those inoculated with the dust collected from seven different hospitals in Berlin developed tuberculosis, while 57 per cent. of those inoculated with the dust taken from the private apartments of consumptives died of tuberculosis.

Perhaps the one agent which has been most trusted by physicians as a natural disinfectant for tuberculous sputum is the influence of *sunlight*. This has doubtless been due to the well-known fact that cultures on artificial media are killed by exposure to sunlight for a short time, and even by diffuse daylight when exposed for a somewhat longer time.

Koch, in 1890, stated before the Tenth International Medical Congress, in Berlin, that tubercle bacilli are killed by an exposure to direct sunlight of from a few minutes to several hours, varying with the thickness of the layer, and that cultures placed near a window are killed in from five to seven days by exposure to diffuse daylight.

From that time to this the medical profession has blindly trusted to light as a natural disinfectant for the sputum, and for the most part the use of more certain germicides has been neglected. I have seen a medical man, himself the victim of tuberculosis, take every precaution to keep the sputum from drying until it could be properly disinfected when he was indoors, but he did not hesitate to spit on the lawn or in the street because of his confidence in the action of strong light.

Migneco,[14] in 1895, was the first to investigate the influence of sunlight upon the *virulence* of the bacillus of tuberculosis. He used a different method, which for practical purposes, is more important than that used by Koch. Instead of relying upon the growth of cultures on artificial media, he spread sputum on linen and exposed this to sunlight for varying periods of time during the hottest season of the year, viz., July, August and September. At the end of different intervals guinea pigs were inoculated, and in this way the virulence was determined. He found that sputum exposed to sunlight continuously for from five to thirty hours still retained its virulence; that the virulence only began to be diminished after ten to fifteen hours, depending on the thickness of the

layer. The bacilli were unable to withstand exposures of forty hours.

Mitchell and Crouch,[15] of Denver, have made the most valuable experiments on this subject that we have, and their results coincide with those of the earlier experiments of Migneco. They exposed sputum containing almost a pure culture of tubercle bacilli on sterile sand in Petri dishes so as to represent natural conditions when the sputum falls on the soil. The guinea pigs inoculated with sputum exposed in this way from one to twenty-five hours were all tuberculous, while none developed the disease from the injection of sputum exposed for thirty-five hours. Exposures for a longer time entirely destroyed the vitality of the bacilli. They concluded that sputum dried on a sandy soil only begins to lose its pathogenicity after twenty to thirty-five hours exposure to direct sunlight, and is only lost after the last mentioned time. These exposures were made between 10 a. m. and 4 p. m., during September and October, in Denver, Colorado.

The most recent investigations in this line are those of Jousset.[16] From his first experiments (1900) he thought that the virulence of tubercle bacilli was destroyed by exposure to sunlight for from four to seven hours, but hesitated to fix any definite time for sterilization by this method. In a later paper,[17] just published this year (1902), Jousset gives the results of more recent experiments, in which he finds twenty-four hours exposure to direct sunlight insufficient to sterilize sputum, while an exposure of forty-eight hours is sufficient.

It should be understood that in all these experiments the exposures only lasted six or seven hours each day, so that it required from four to six consecutive days to destroy the virulence of tubercle bacilli by sunlight. When it is remembered that tuberculous sputum usually dries in four to six hours, it will be seen what opportunity is afforded for the dissemination of the disease, even when nature's most powerful germicide is operating at its best. We have no observations as to how long the bacilli can withstand diffuse daylight and remain virulent, but we know that they may live in the dust of rooms for from one to three years.

The ability to resist putrefaction, drying and light at once suggests that tubercle bacilli may form spores—an idea that has long been entertained by many. The unstained spaces in tubercle bacilli might cause one to think of spores, but these are not refractive in unstained specimens. The recent observations of Swithinbank[18] in showing that these bacilli will grow in cultures and subcultures after exposure to liquid air at a temperature of —186° C. for forty-two days, might strengthen this opinion.

Against this view we have the observations of Bang,[19] of Theobald Smith,[20] and of Russell,[20] each of whom has found that the bacilli of tuberculosis are killed by a temperature of 60° C. for ten minutes, whereas all known spore bearing bacteria are able to resist this temperature. This is of considerable importance in pasteurizing milk for feeding infants.

Whether tubercle bacilli form spores or not, there is abundant proof that they may live and remain virulent for a long time after they are given off from the animal body. As practical sanitarians, we should not rest in a false sense of security, trusting to nature's agencies for the destruction of these germs soon after they leave the animal body, but should take every possible precaution to destroy them by certain, reliable means, and thus prevent their dissemination. If we expect to have the support and co-operation of the people in this matter, medical men must not be passively indifferent, but must take the initiative in combatting this greatest scourge of modern civilization, which Dr. Holmes aptly called "the great white plague."

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THE PARAMOUNT DUTY TEXAS OWES TO HER PEOPLE.

F. E. DANIEL, M. D.,
AUSTIN, TEXAS.

[DR. F. E. DANIEL prefaced his paper by saying: I was very much gratified to find from the remarks the Governor made today that his sentiments are so much in accord with my own as set forth in the brief paper I have prepared. The Association recognizes with deep gratitude the Governor's assistance in recommending the passage of a medical bill. It was not his fault that it was emasculated. It is only to be regretted that he did not express similar sentiments when he was asked to appoint a State Board of Health and when committees waited on him in regard to tuberculosis and compulsory vaccination. I would not be thought to be desirous of detracting by one iota from what the Governor has done, but I repeat that it is to be regretted that he did not render us the assistance he might have done upon these occasions. In my paper, where I indulge in some criticisms on the Quarantine Department, I hope it will be clearly understood that I am criticising the department, and not the distinguished gentlemen who have had charge of its administration.]

Savages and beasts must adapt themselves to their environment or perish. Civilized man conquers his environment. He makes the material resources of his surroundings and the forces of nature subservient to his uses and the advancement of civilization. In the ability to do this lies his chief claim to supremacy in the animal kingdom. The inexorable law of the survival of the fittest in the fierce struggle for existence, applies to races and nations, and is the chief factor in their evolution into strength, stability and permanency. That nation is not the fittest that simply has the largest population, though population is the first requisite to national strength and expansion. A people may be so numerous, but defective in the elements of vitality, that, like an overburdened fruit tree, where none of the fruit may ripen, it goes to pieces of its own weight; or they stagnate until cholera or plague relieves the congestion, or a stronger, a fitter race, reduces them to subjection.

A healthy, strong, vigorous and enlightened population makes a nation great. Hence, the prime consideration is physical health. That State which overlooks this, or ignores a fact so well understood that it has long since become a maxim: "The welfare of the people is the supreme law," commits a fatal error.

The people are the power in a State. They elect one of their number to govern them, and others to represent them and express their will in the legislative halls, and make known their needs. They stand in relation to their governor as children to a father, and look to him for protection, not only in their property rights and the fruits of their labor—both of which are safeguarded in Texas—but in those interests that are a thousandfold dearer to every man, life, health, home and hearth. Socially, they are "citizens," and each contributes his share to the advancement of all that makes for wealth, strength, enlightenment, safety and prosperity, and the governor is the honored head of the socio-political body. In war the citizens are the State's soldiers and defenders, and the "father," the "chief executive," is their commander-in-chief.

That wisdom and promptness would characterize his action were his "children," "fellow citizens," "soldiers" threatened or being devastated by any visible and tangible danger, goes without saying. That both he and the representatives of the people's interests should so long have shut their eyes to the dangers which are as real and as deadly, though intangible, as would be the invasion of an armed host; that they should shut their ears to the warnings of those whose profession and training peculiarly fit them for knowing and appreciating the dangers to the public health by reason of unsanitary conditions, and to the protests of the commercial interests of the State, is as remarkable as it is disgraceful. Such neglect, and the perpetuation of an obsolete and ineffective quarantine instead, is ruining commerce and driving trade from our borders. It is paradoxical. Every safeguard is thrown around property, but no protection is given the people against deadly disease, and against the deadlier danger, the "drugless" doctor! For a quarter of a century the Texas State Medical Association has endeavored to

make the Governor and the Legislature see the necessity for protection against diseases other than that afforded by the barbarous and ruinous quarantine, a system that takes cognizance of nothing but diseases of foreign origin, and which, panic-stricken upon the first alarm of yellow fever, locks the wheels of commerce, stops all immigration and traffic, even to refusing entrance to a flat carload of railroad iron! This Association has for twenty years put its finger upon each source of such dangers and said to Governor and Legislature: "See, here it is: polluted water, reeking with typhoid fever, diphtheria, dysentery! See, here it is: consumptives by the score, traveling in the deadly draperied and upholstered sleeping cars, and putting up in the stuffy, ill-ventilated and seldom-aired rooms of hotels and boarding houses, thus scattering, broadcast, the seeds of the deadliest and most fatal contagious disease that afflicts mankind. See, here it is: a 'doctor,' an ignoramus, because he is 'drugless,' is exempt from the operation of the only medical law we have ever had in Texas that amounted to a row of pins, and which scarcely amounts to much more. Because this 'doctor' 'gives no medicine' he is at liberty to pull on the fractured arm of a child until the child is 'past praying for,' under the impression, as he expresses it, 'the arm was outer j'int.' See, ten to fifteen per cent. of the blind of the State, whose care, education and keeping cost the people a hundred times as much as it would have cost to prevent it, are made blind by failure of 'doctor' or midwife to recognize infantile sore eyes and properly treat it. See, the dirty midwives spread puerperal sepsis unhindered by law."

It is a shame on the people of Texas, a reproach to the great State, a blot upon our boasted civilization, that such things should be; that a State with 3,000,000 citizens, progressive, intelligent, industrious, loyal, producing about twenty per cent. of the world's supply of the great staple so indispensible to the wants of the millions; a State the extent of whose material resources would baffle the wildest guess; a territory destined some day to be an empire—capable of sustaining a population of half a thousand millions, and in whose vaults lie locked up—dead—a yearly average of $4,000,000, should refuse, fail or neglect to expend a portion of

that great surplus in rational efforts to save its people from those diseases originating in our midst that destroy annually more lives than all the cholera, plague, yellow fever, smallpox and war combined.

I quote from an address by Col. A. P. Wooldridge, of Austin, president of the City National Bank, and president of the Texas Bankers' Association: "In February last there was nearly $4,000,000 in the State treasury. Thus we have a grand total in and out of the treasury in the early part of this year of, say, $16,000,000 of actual cash. From these calculations, which will be found to be approximately correct, we find that in the early part of the present year, 1901, probably at this very time, one-fourth of all the cash in Texas is hoarded within its treasury vaults, and this, too, the hard-earned money of the people, taken from them in taxes, and kept not over securely and where it can do no possible good."

That representatives of the people should not demand protection of the health of the people, the fundamental source of wealth, strength and prosperity, is an almost incredible and unpardonable fault. It is their duty to do it. It is the sacred duty, imperative and pressing, incumbent on them and upon the Governor, to see that his "children," his "fellow citizens," his "soldiers," the units of the great whole which make up the great State of Texas, are protected from dangers of which the majority have no conception, and therefore cannot avoid. It is the paramount duty of the hour! Texas, great in all else, should no longer be pointed at with ridicule, because she has never instituted that first essential to a knowledge of the diseases which decimate her population every decade—a record of vital statistics. Without this knowledge no reform in the way of preventive measures is possible.

This is a vast subject, and I cannot enlarge upon it. Much that pertains to it, while a sealed book to the people and the average lawmaker, is merely elementary knowledge to this body and all enlightened sanitarians. I will only say that the death of every baby, not to say man, is a distinct money loss and a loss of "potential" to the State. The death of every baby or child reduces the average longevity of the people and affects the life expectancy. It

is a sad thing to see a baby, or any one, die of any preventable disease, and it is a crime, chargeable against the State, that any should so die. But when we see a strong citizen, a progressive business man, an upbuilder of civilization, stricken down by a miserable typhoid germ which he has unconsciously swallowed in the well water of his home, it may be, or the unfiltered filth of some city drained into the river and distributed by a costly system of waterworks from a reservoir costing $2,000,000 and for which the city (in this case Austin) is bonded, the polluted water from which was once served to soldiers in a camp on its watershed and to citizens, it is doubly sad; it is a shame. To paraphrase Whittier's famous lines, "The saddest words of tongue or pen are these: 'It might have been'"—prevented. Poor consolation to the widows and orphans; to the hosts of attached friends. Is it not the duty of the State, the Governor, the lawmakers, to see that in future all such deaths are prevented? In the name of God and humanity, yes!

This is a subject so prolific of thought and pregnant with importance that I can not in the brief time allotted to reading a paper, do more than touch it. It is a subject upon which I have bestowed much thought, made much observation and by tongue and pen have "harped" it until it has become tedious. We "have piped, but they wouldn't dance." A prophet not without honor save in his own country, (I hope I will be pardoned for saying), was recently illustrated in a small way in my own experience. At the request of the progressive and enlightened editor of *The Current Issue,* a popular magazine published at Austin, I wrote up the subject of vaccination, and showed the necessity of a law that shall make it practically compulsory. The State Board of Health of Florida ordered one thousand pamphlet reprints of the article for educational purposes in that State; none were used in Texas.

I cannot go into the details of the many sanitary evils that should be corrected at once by the State. I can only allude to the necessity of protecting all water supplies from pollution, protection of the people from quack doctors, "osteopathy," "Christian Science," and all such absurdities and abominations; from consump-

tion, by compelling the railroads to sterilize all cars and abolish all upholstered equipment; all hotels to sterilize rooms occupied by consumptives or persons with other contagious disease; to institute drainage, ventilation, regulate plumbing, enforce vaccination, etc. In a word, the pressing necessity is a State Board of Health, composed of the ablest and most experienced sanitarians of the State, and the appointment of such board, which should be paid sufficient salary to enable every member to give his whole time to its important duties, is the paramount duty Texas owes to her people. Details should be left to this Board, the most important of which is the institution at once of a system of vital statistics. It is almost incredible, yet it is a fact, that there is in Texas no record from which it may be proven in court, should it become necessary to do so, that any citizen was ever born in this State or that he ever died. There is no way to find out how many people die yearly in Texas, nor of what they die. I say that this is a reproach that Texas should no longer endure. There is an awakening all over the world to the ravages of the dread white plague, and tuberculosis congresses are being held in America, Europe and Asia to discuss it, and devise means for its arrest. Texas should wake up and take a hand. Texas must admit that smallpox is now permanently endemic in her borders, and she is not able to suppress it. It should bring the blush of shame to our lawmakers to have to admit that while such is the case, Japan, Japan whose people have just emerged from barbarism and who, forty years ago, were fighting with bows and arrows, has exterminated smallpox and has no quarantine against yellow fever; that poor, old, effete Spain has exterminated smallpox; that Germany has exterminated smallpox, all by intelligent legislation—the practical enforcement of vaccination. France has just passed a compulsory vaccination law.

Let us see for a moment how outside people, especially "capital," look at the "sanitary" situation in Texas, and its sanitary needs. Let us see it through the specs of the Merchants' Association of New York, and judge how it affects investments in Texas. It will be remembered that a special committee representing that body of capitalists, by invitation of our Governor and the Legislature, vis-

ited Texas about a year ago. They have published their report. During their visit I had several protracted interviews with their sanitary member, Dr. George A. Soper, engineer and chemist, and it was in my power to give him (and I did so with great pleasure) much information that he wanted. Dr. Soper's contribution to the report is embraced under several heads: "Natural Health and Climatic Conditions," Sectional Characteristics," "Temperatures," "Irregularities of Climate," "Health Resorts," "Care of Public Health" (he should have said "neglect of public health"), "State Health Organizations," "Quarantine," "Relation between Sanitary and Commercial Progress," "Conclusions." With your indulgence, I will read some extracts from his report:

"There are many sources of complaint for the want of a thoroughly organized central health department in Texas, not the least of which relates to the absence of provision for the collection of vital statistics. No vital statistics are collected.

"In the absence of data regarding the distribution of disease, the healthfulness of the cities and towns is not accurately known.

"Streets, as a rule, are not paved, except in the larger cities. The cleaning of streets and the collection and final disposal of garbage are subjects which have not thus far received the attention they deserve. * * * The free use of disinfectants too often takes the place of the means of preventing diseases which are based upon thorough order and cleanliness."

Of the Texas quarantine, Dr. Soper says: "It is customary for the Governor to issue a proclamation each spring, declaring quarantine against seaports south of twenty-five degrees north latitude, the duration of this embargo usually extending to about six months. To these regulations and to the provisions of the State quarantine law (Title XCII, Revised Civil Statutes), which contains the authority upon which the quarantine regulations are founded, there has been an active protest by the medical profession and business fraternity for years. The argument is made that the regulations are unnecessarily severe, subject to various interpretations requiring an unauthorized exercise of power for this enforcement, and that they are liable at critical times to fail in accomplishing their

purpose. There is no doubt that the quarantine regulations, as often interpreted, are very severe. In this connection, it is interesting to refer by comparison to the action of other Southern States which are also exposed to yellow fever. Realizing the commercial importance of establishing uniform and intelligent regulations for the management and prevention of yellow fever epidemics, all of the Gulf States, with the single exception of Texas, have adopted a code of quarantine rules known under the term of the Atlanta Convention. There is no clear reason why Texas has not availed herself of the benefits thus offered. Not only would such action aid in protecting her citizens, but it would greatly lighten the restrictions now placed upon commerce.

"As to the interpretation which may be put upon the existing quarantine law of Texas, it is only necessary to refer to the frequent misunderstandings which have arisen in its administration. It has been pointed out that the State Health Officer, while nominally in authority, has not been vested with the power of enforcing his directions by legal process. Instances of the arbitrary nature of the power of direction shown during yellow fever scares amply demonstrate his difficulty in overcoming the natural prejudices of people accustomed to the crude method of the shotgun quarantine.

"Under the circumstances it is natural that the numerous accusations of abuse of power should have been made in the medical and public press against the State Health Officer and those who have been called upon to act in concert with him. How far these gentlemen have laid themselves open to such criticism it is not here necessary to say. Their positions have been difficult to occupy to the satisfaction of all interests.

"The cause of sanitation has made slow progress throughout the South, and Texas does not stand alone in failing to take due account of the advantages which modern science offers in avoiding communicable diseases. It is not only in Texas that we see the onerous and trade-killing absurdities of a totally suspended traffic, quarantined by reason of an excited body of citizens armed with shotguns and rifles, and stampede and panic which occur with the appearance, or a rumor of the appearance, of yellow fever. Nor is the

apparent indifference with which modern cities of the South regard advanced methods of sanitation and health administration confined to Texas. It is not intended to condone the quarantine customs and lack of sanitary improvements which, to an impartial eye, are clearly open to criticism, but rather to point out that the practical improvements demanded in her methods of avoiding epidemic diseases must be applied in accordance with natural conditions which are deeply seated and widely prevalent.

"In the industrial awakening which is now taking place, improved sanitary measures are sure to be inaugurated. The losses to business interests, owing to defects in the health laws, by making themselves more and more evident, will in the course of time bring about their own remedy. In a few years such a loss as that of 1898 suffered by railroads, shipping, merchants and others engaged in trade, estimated at from $3,000,000 to $5,000,000 and resulting from a mere scare of yellow fever, will be impossible. * * * The inquiry would be incomplete if it did not point out that the State, by reason of imperfect legislation, and the people by reason of a natural reluctance towards sanitation, have failed to contribute that factor of stability to health conditions which the interests of commerce demands.

"It is clear that a Board of Health is needed in place of the single-headed office now maintained by the State, and that its scope of authority should be commensurate with the great responsibilities which should rightfully come to it. A board, based on principles successfully carried out by such organizations as those of Massachusetts, Michigan and Connecticut, for example, with such changes and modifications as are required to adapt them to the needs of Texas, would be a strong argument to the outside world that the people were laying a strong foundation for their material and permanent advancement. By the operation of a State Board of Health the health conditions in all parts of the great territory could be accurately observed, epidemic diseases most readily controlled, valuable lessons and advice to towns and cities given as to water supplies, sewerage systems, food and drug inspection, disinfection, health ordinances, garbage disposal, etc. Not the least of

the duties of the State Board of Health would be the dissemination of a broader and more accurate knowledge of the principles of preventive medicine, so that the people might receive those benefits to which they may fairly lay claim as citizens of the great Commonwealth."

I can not better close this brief paper than by a reference to what sanitary science intelligently applied can do and has done toward promoting health, wealth, longevity and consequent strength, permanency and prosperity of a nation; nor need I go far into history for examples. The work in England of Dr. Farr, through whose labors the first public health bill was passed by the British Parliament, a record of vital statistics kept and reform instituted which resulted in the lengthening of the average life of the people, which was truly astonishing, is a matter of history. And the labors of the immortal Howard in the prisons and jails of England mark an era in the history of medicine. It is only necessary to allude to the work done right here at our doors, and only just now completed, by the sanitary department of the United States army in Cuba, under the intelligent and vigorous direction of our brother physician, the great Gen. Leonard Wood, and under the immediate supervision and execution of Surgeon Major W. C. Gorgas, U. S. A.

Dr. Gorgas says that "when the army took charge of the Health Department of Havana deaths were occurring at the rate of 21,252 per year. It gives it up with deaths occurring at the rate of 5,720 per year. It took charge with smallpox epidemic for years. It gives it up with not a single case having occurred in the city for over eighteen months. It took charge with yellow fever epidemic for two centuries, the relentless foe of every foreigner who came within Havana's borders, which he could not escape and from whose attack he well knew that every fourth man must die. It found Havana feared as a thing unclean by all her neighbors of the United States and quarantined against as too dangerous to touch, or even to come near anything that she had touched, to the untold financial loss of both Havana and the United States." At this time, May, 1902, after some two years, when the army turns over the work to Cuban authorities, yellow fever can scarcely be said to

exist, and its control is well in hand and its early extermination confidently expected. Quarantine against Havana is no longer necessary.

Let the people draw their own inference of the value of sanitation from this work done.

DISCUSSION.

DR. TAYLOR HUDSON: The paper we have just heard read is a most valuable one alike to the profession and the public. I believe that if a copy of it could be put in the hands of every head of a family it would be the means of accomplishing the best possible missionary work. I would like especially to put it into the hands of every member of the Legislature. It might lead to some useful legislation. It is a hard matter to get the ear and attention of our legislators, and while I do not know that it is within the province of the Committee on Legislation, I believe that if they could arrange to send that paper out as an educator it would do a great deal of good.

DR. FRANK PASCHAL: The paper deals with too important a subject to allow it to pass undiscussed. The condition of the State in regard to vital statistics is as unsatisfactory as it could be. We have no means of knowing the number of deaths or the number of births that occur. Still less is any record kept of the causes of death. A murder may be committed, and the body put under ground, and unless there is suspicion of foul play, we have no means of finding out how the person died. No records are kept as to the prevalence of contagious diseases, nor are there any means for ascertaining whether a particular county is or is not in a condition conducive to the health of the community. Such a state of things is a disgrace to this great State of Texas, which is looked upon as one of the greatest in the Union. But I am glad to tell you, sir, that I now, for the first time, see a break in the clouds. Only a year ago I called upon the Governor, and tried to get him interested in a movement for getting an institution for the care of consumptives. He expressed his sympathy. Afterwards I was interviewed, and stated that the Governor was in favor of organizing a State Board of Health. The Governor came out with a disclaimer, which was literally correct. Now I find that he is in favor of the State having a Board of Health, and I believe the day is not far distant when vital statistics will be kept and the sanitary arrangements of Texas will not be behind those of any other part of the United States. We must not, however, allow it to be controlled by commercial interests, as in San Francisco, where a health board was recently dismissed for telling the truth about the presence of bubonic plague. We

want a law under which neither the Governor nor any one else will be able to cause the Board of Health to speak anything but the truth or do anything but what they think is right, for the health of the community is far above all commercial considerations. There is nothing worse than for a Board of Health to be domineered over by commercial interests. I believe that we are now on the eve of a change, and that we shall soon see Texas equal in regard to her sanitary laws to any other State in the Union.

DR. M. M. SMITH: I desire to say a few words on this important subject, and especially on that part of it which has to do with the establishment of a State Board of Health. It has been my honor to be a member of the Legislative Committee, one of the principal objects of which has been to get a State Board of Health appointed. I am pleased to see our excellent Health Officer with us tonight, and when I take my seat I should like to insist that we hear from him. It is the desire of the Legislative Committee, and I feel sure that it is the desire of the State Officer of Health, as well as of the Governor, that we have a law enacted by which we will be able to carry out the recommendations made by the chairman of this section in his opening address and by Dr. Daniel in the paper we have just heard read. If the Association will not ask too much, and if it is careful to go about the matter in the right way and so secure the assistance of those in authority, I am sure we will be able to reach a common ground on which we can all stand, and get a law passed that will redound to the credit of the State. We propose, instead of having a single officer, as at present, to have a board consisting of three, four or five members. The State Health Officer should be president of the board. He should reside at Austin, and have a fixed salary. All the general work should be in his hands, but he should have the counsel and assistance of a board made up of the representatives of different districts, so that in the event of smallpox or yellow fever, or any other epidemic breaking out, concerted action could be taken promptly. I believe that if we will proceed with this matter conservatively, and act together, we will succeed.

DR. GEORGE TABOR, State Health Officer: I regret very much that I was not here to get the benefit of all Dr. Daniel's paper. I only heard the latter part of the roast of the State Health Officer. I do not think he should have roasted me, but the laws which I have to administer.

DR. DANIEL: In my preliminary remarks, I expressly stated that I did not intend to criticise the State Health Officer, but only the laws and the system.

DR. TABOR: I am all the more sorry, then, I was not present to hear the whole paper. I know very well that Dr. Daniel is my friend, and that he realizes that I am only in my position to enforce the laws. I do not

make them. As far as I have authority I have enforced them, and I intend to continue to do so. I cannot make regulations, however, of my own accord unless there is a statute on the law books to justify my action. Only recently I made a request to the railway companies to improve the sanitary condition of their passenger cars. Over 75 per cent. of the companies agreed to conform to the regulations which I proposed. From some of the others I had letters asking for my authority, and as I had none, I could not insist on the regulations being carried out. I am heartily in sympathy with any movement that will increase the efficiency of the Health Department, and I will cordially support any measure having that end in view. As to the quarantine regulations on the coast of Texas, which have been criticised severely, and which will always be criticised by commercial interests whenever the latter are interfered with, I would only say that the regulations now are milder than heretofore. Formerly vessels arriving at Galveston from Havana were held ten days after their arrival. Now they are only detained five days from the time of leaving Havana, provided they have been disinfected there. Vessels, again, coming from bubonic plague ports used to be detained five days. Now they are not detained provided there has been no sickness on board. I conferred with Surgeon-General Wyman on the subject, and as a result the regulations of Texas are as mild as they can be to conform with the regulations of the Marine Hospital Service. If it were otherwise, the Marine Hospital Service would come in and take charge of our quarantine regulations. With reference to vital statistics, I am also heartily in favor of a better system, but I cannot introduce it without the authority of law, and the law is very deficient. My predecessors have been furnished with an assistant. The last Legislature abolished that office, and I have no help and am not allowed to employ any. The appropriation is less than it has ever been, and the expenses are also less. Formerly there were two sums available for the use of the Health Officer—one a sum granted for the purposes of general maintenance, the other consisting of certain fees. Since my incumbency the latter have been deposited in the State Treasury, and I have only used the money appropriated by the Legislature. You can see how I am handicapped. How can I, under those circumstances, inaugurate any system for the collection of vital statistics? All my time is taken up in making trips between Galveston and diagnosing doubtful cases of infection. I endorse everything that has been said as to the need of increasing the efficiency of the department, and I will be glad to lend any assistance I can to that end.

DR. J. T. WILSON: I think nobody will deny that sanitary measures are needed, but is it right that all the blame should be thrown on the Legislature and the State Health Officer when there are six thousand doctors in Texas? If you would but organize the profession, make them a

unit, get them to co-operate and work with each other, you could obtain any reasonable law you desired. But that is the trouble. You cannot get any dozen of men to agree upon what is wanted. In regard to a State Board of Health, there is no doubt it would be of great advantage, but you must get the proper kind of a bill, a bill that will reach all parts of the State. I cannot agree with Dr. Smith as to his plan of organization. You cannot get men to work without pay. You must have an appropriation, or your Board of Health will amount to very little. One thing in particular calling for attention is the examination of the food supply, but we cannot get that or anything else attended to until we get organized.

DR. M. L. GRAVES: I was very much interested in the paper, but I would remind the Association that when you have got a bill establishing a Board of Health it does not solve the whole problem. We need organization throughout the State. I was instrumental in getting a board established in Waco. We got a board without pay. We were soon confronted by the fact that we had no legal authority, and consequently we got into a condition of confusion and chaos. After you get your State Board of Health established, you must have your local boards and officers in harmonious relations with each other and with the central authority, and with sufficient legal powers to carry out the laws. In Waco we could not get the physicians to report the births and deaths. Dr. Paschal, I believe, has been more successful in San Antonio, and he has also done much that is worthy of imitation in the way of enforcing the laws there, examining food and dairies, and a variety of other things.

DR. C. E. CANTRELL: We must teach our law-makers what is required. Every man should individually become an instructor of the legislators, and let them know what is required for the good of the State. Until we do that our hands will remain tied. The best way to begin is by ridding the medical profession of the low grade of men who practice medicine and reflect on the character of the profession.

DR. DANIEL, in closing, said he had nothing to add.

THE INFLUENCE OF FLIES IN SPREADING TYPHOID FEVER.

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At the present time, when the aim of modern medicine is not only to cure, if possible, the human being afflicted with disease, but also, and far more important, from the standpoint of the physician, to prevent such disease, it behooves us, as wide-awake members of the most honored profession, to study carefully the means by which such prevention can be attained.

You will agree with me that, first of all, a clear understanding of the specific cause of a particular disease, joined with a knowledge of the life history, environment and growth of such specific cause, both in and outside of the human body, is absolutely essential to an intelligent effort at preventing the spread of an infection in a community.

We, of today, are especially fortunate in that the causes of most contagious and infectious diseases, barring variola, yellow fever, measles, scarlet fever and a few others of less importance, have been discovered beyond all doubts; and especially fortunate are we that of all the diseases which afflict humanity, the one most universally distributed over the world—typhoid fever—has become best known.

Recognizing the importance of the subject in hand, it may not be out of place if I trespass upon your time by briefly reviewing the bacteriology of typhoid before developing the real object of this paper.

The honor of having discovered the specific organism of typhoid fever must unanimously be given to Eberth, who, during the years of 1880 to 1882 first identified the groups of organisms which had been found a decade earlier by himself and several other observers,

in the bodies of those dying from this disease, with the lesions of typhoid.

Gaffky, in 1884, made the first complete study of this organism as to its morphology, biology, and distribution in the body, and his conclusions on these subjects, as well as his results obtained from experimental reactions on animals, have been generally confirmed by subsequent research.

The bacillus of Eberth has the faculty of adapting itself to varying conditions and grows readily on and in various media; holds tenaciously to life under most adverse circumstances and turns up in most unexpected localities.

Temperature has little to do with the growth of this organism, although it shows its appreciation of a comfortable degree of heat by thriving best at body temperature. Prudden states that after keeping a culture frozen for three months at -11 degrees C. he was still able to obtain live bacilli.

Again, bacilli have been exposed to drying on various media, including clothing materials, food stuffs, wood, bedding, household furnishings of all kinds, and in earth, but under ordinary conditions resisted desiccation from one to four months, depending upon the medium used and the thickness of the layers in which the germs were exposed.

In water they develop to various extents and retain their vitality in direct proportion to the amount of organic nitrogenous material contained therein.

Estimates running from five days (Hochstetter) in distilled water, to eighty-one days in sterilized river water (Strauss) have been made and that the age and virulence of the cultures transplanted to the water influences the longevity has been clearly demonstrated by Jordan, who found that a young and active colony survived ninety-three days in sterilized water from Lake Michigan and eighteen days in distilled water while an older culture lived less than six days in the distilled water.

Uffelmann, experimenting with feces, found that the germs lived more than four months at a temperature between 17-20 C. (62,6-68 F.), provided the material were feebly alkaline, and that in ordi-

nary soil from three to five and one-half months, according to the method of exposure, living longer in the deeper layers of the soil than when exposed to the direct rays of the sun on the surface. He also found that this bacillus retained its vitality in layers 4 mm. thick on wood for thirty-two days, on linen for sixty days, and on woolen cloth for eighty days, but that while complete desiccation quickly destroyed its vitality, such complete drying was extremely difficult to attain under all ordinary conditions.

Robertson, working along the same lines, has shown that these organisms may survive from one summer to the next, provided there be enough organic matter present in the soil, but that if the medium be uncontaminated with such matter they quickly die out.

An extremely interesting experiment, and one of vital importance to the sanitarian, is that conducted by this same investigator, in which cultures planted eighteen inches underground grew to the surface, while those planted on the surface grew downward only three inches. In both of these experiments he found that the bacilli had spread to some extent laterally.

In dust the organism probably survives several weeks, as several French investigators have reported finding it in the dust of certain barracks, but no statement other than the above noted general one can at present be made.

The bacillus lives thirty-five days in milk; thirty days in oysters (Foote); twenty-one days in butter; three days in cheese; three days immersed in a liquid containing three-hundredths per cent. of HCl and two hours in pure gastric juice, according to Strauss and Woertz.

Such is a brief history of the resistance of this germ in media outside the body; let us now consider its persistence in the body. Here, again, we find diverse statements, varying from months to years. For example, Buschke states that cultures were obtained from an old focus of inflammation in bone seven years after the original infection; Orloff isolated them from a periosteal inflammation after six and one-half months; and Chantemesse found them nine months after infection in the pus of an osteomyelitis. Other estimates run from eight to ten months, the cultures being

always obtained from situations most favorable for the protection of such organisms from exposure to sunlight, direct drying and extremes of temperature. The conclusions to be drawn from the foregoing statements are that the bacillus typhosus may persist outside the body from a few days when exposed to the direct action of the sun, to many months when not so exposed, and depending upon the media in which deposited, while in the body, they may live almost indefinitely in tissues subject to slow inflammatory changes due to this organism.

It is beyond the scope of this paper to dwell more than a minute on the pathology of this disease, and, indeed, unnecessary in a meeting of this character, but for the proper presentation of the subject allotted me, a brief enumeration of the ways in which this organism is eliminated from the body may not be out of place.

In typhoid fever, as in many diseases of specific origin, the organism chooses certain localities in the human body where it develops and throws out its toxins to be absorbed and give rise to the symptoms peculiar to each set of toxins—some common to all—and the bacillus of Eberth is no exception to this rule, since it shows marked preference for the lymphoid structures and mucous membrane of the lower small intestine and upper colon.

The first development takes place in the Peyer's patches and solitary glands of this region; it spreads by the lymph channels to the neighboring mesenteric glands and finally by blood current to the spleen, liver, kidneys, lungs, nervous system, bones, larynx, pharynx and, in fact, may invade almost any and every tissue in the whole body to give rise to the many complications and sequelæ so troublesome to the medical attendant in such cases.

Naturally, knowing the primary location of development of this organism, we would look for the germ in the feces, and secondly, knowing that it invades other organs of excretion, would expect, as a logical sequence, to find it in the excretions of those organs.

That such is a fact has been proved by many investigators, so that our next step will be to determine as accurately as possible how soon after infection, and by infection, for the purposes of this

discussion, we may discard all other ways except ingestion, we may find the micro-organism in the excreta.

Munson, in his valuable work on military hygiene, says that the bacillus typhosus is not usually found in the stools before the seventh day, but that the latter are probably infective during the incubation period and most certainly so during the onset of the disease; he also states that the stools appear to gain in infectivity for several days after discharge from the patient and that bacilli have been found in some cases in the stools passed forty-one days after defervescence.

That the bacilli may appear in the stools of people in normal health has been claimed by some and denied by others, but the well-known fact that many people may have a mild form of this disease and continue to walk about makes it probable that there are grounds for claiming that the organism has been found in the stools of apparently healthy subjects.

In the urine, as would be expected from what has been stated regarding the spread of the bacilli through the blood current from the focus of primary infection, they appear later in the course of the disease, but make up for the tardiness of their appearance by the quantities in which they appear; practically pure cultures having been found by some observers and even rendering the urine turbid by their presence in such enormous numbers.

As a general rule, then, the urine is infective at a later stage of the disease than the feces, but remains infective much longer, even to several months after the temperature has been normal. (Petruschky.)

Bacilli are found in the sputum in smaller numbers and in a smaller proportion of cases than in the urine, practically being confined to those exhibiting involvement of the lungs or mucous membrane of the air passages. The last of the excretions, the sweat, has the doubtful honor of being free from these bacilli, although Geisler claims to have found them in one case, but when we consider the numerous ways in which a patient with typhoid can soil the surface of his body from the other excreta, I am sure that his statement will be taken with caution.

To recapitulate, we find the bacillus of Eberth in the feces, urine and sputum, and incidentally on any object that might have been contaminated by these excreta.

Having traced the specific organism through the body, having dealt with its powers of resistance in various media outside the body, having noted its persistence in the tissues of the body, and having shown the means by which it is eliminated from the body, we are now ready to start with the subject-matter proper, the influence of flies in spreading typhoid fever.

The common house fly (*musca domestica*) has, since 1898, received considerable attention by sanitarians because of the conclusions reached by the United States Army Commission, convened to investigate the origin and spread of typhoid fever in the military camps during the Spanish war of 1898, and because of the reports by medical officers in charge of the concentration camps prior to the appointment of this commission.

In 1899-1900, Professor L. O. Howard, Washington, D. C., conducted extensive experiments to determine the life cycle of this insect and to discover, if possible, to what extent the fly would develop in human excrement. These experiments were not the first which this careful observer had conducted along the same lines, but in the first series, carried out in 1895, he had concluded that the common fly developed almost exclusively in horse manure and at that time had been unable to rear them in human excrement.

The former experiments were carried out under conditions different from those natural to the fly, inasmuch as the insects were kept in captivity, and it was not until 1899 that he changed his methods, and subsequently his views, on the subject.

As the result of his labors, we can now place the three stages in the development of the fly as follows: egg stage complete in eight hours; larval stage in five days; pupal stage in five days, or ten days for the entire development from the ovum. Each female laid approximately 120 eggs; the eggs were deposited in human excrement and adult flies easily reared from them when such excrement was exposed out of doors and the flies allowed to obey their natural instincts.

Both sets of experiments confirmed his statement that horse manure formed the favorite breeding place of these insects and that this material was responsible for ninety-five per cent. of the flies in a community.

When the life cycle and history of this common pest is considered, with the fact that from twelve to twenty generations may be bred during the summer months in temperate climates, it is not an effort to solve the mystery as to how they occur in such myriads.

That the common house fly is not the only species attracted to and bred in human excrement was proved at this time, but that all others may be disregarded by the physician when the varieties captured on food supplies are considered, will be evident from the following statement of Professor Howard: "In all, 23,087 flies were examined which had been caught in rooms in which food supplies are ordinarily exposed and which may safely be said to have been attracted by the presence of these food supplies. Of these 23,087 flies, 22,808 were *musca domestica, i. e.,* 98.8 per cent. of the whole number captured."

The anatomy of the fly may be omitted with the remark that its feet are particularly adapted to the carrying of infective filth of all kinds, and this, in connection with the well-known habits of the insect, adds another black mark to its record, already bad enough as a destroyer of domestic comfort.

Another way in which the fly can carry infection was found as early as 1888, when Celli fed pure cultures of the bacillus typhosus to flies and then recovered virulent bacilli from the excrement of these same flies. We have, then, two ways in which infection may be conveyed by flies: first, infective matter, feces, urine, sputum, earth infection through deposit of any of these excreta or, in fact, any material that has become infected by such contamination may adhere to the feet of the fly and so be transferred to food ready for human consumption; second, flies feeding upon infected material may transport the infection in their digestive apparatus and deposit it upon food with their excrement. The necessity of preventing the access of flies to the food supplies of a family should be perfectly evident from these two statements, for even if there

are no known cases of typhoid in the immediate vicinity there may be other diseases, the germs of which flies are known to carry with them.

The army commission, while devoting especial attention to the water supply of the camps with regard to possible contamination through surface drainage from infected sinks in the neighborhood, became convinced that only a small proportion of the twenty thousand odd cases of typhoid which developed among the troops detained there during the summer months, could be traced to an infected water supply; and in view of the fact that, during an epidemic, too much attention is often devoted to the water supply to the exclusion of other and just as important factors in the spread of this disease, I will mention one of the facts which led them to this conclusion.

At Jacksonville, Fla., and at Knoxville, Tenn., the water supply of the troops quartered there was drawn from the same source as that used by the residents of those two places; yet, at a time when the admissions for typhoid to the army hospitals averaged twenty and over per diem, there were practically no cases among the residents of these cities.

Regarding flies, this same board says: "Flies undoubtedly served as carriers of infection." The reasons for this statement were several, and will be given in order. There was a standing order that earth, lime or ashes should be sprinkled over the fecal matter in the sinks three times a day, and in numerous instances where lime had been used recently, flies with their feet whitened with this substance were seen walking over the food in the mess tents—a condition of affairs quit convincing to an ordinary mortal, you will agree.

Perhaps the most convincing argument in proof of the agency which flies exerted in disseminating this disease is furnished by the charts showing the proportion of cases of typhoid at different times of the year with reference to the fly pest.

Because of its tendency to appear in the late summer months, typhoid has long been known as autumnal fever, yet in the army camps this disease was at its maximum during the season when

flies were most abundant and with the disappearance of these pests there was a corresponding diminution in the cases of typhoid and at the very time when the number of cases in civil life had begun to increase.

That this decrease with the disappearance of the flies was not due to a lack of susceptible material was investigated carefully and proved not to be the case, as several newly recruited regiments which had not been at Chickamauga or any other infected camp were received at Knoxville in September, at a time when there were numerous cases among the older troops quartered there.

These new regiments developed typhoid soon after arrival and while the fly pest was at its height, but the disease disappeared among these fresh troops at the same time that it disappeared among the older organizations, and coincident with the disappearance of the flies.

One more point arguing in favor of flies having been one of the chief agents in spreading this disease is found in the statement of this commission, supported by figures, that typhoid was less prevalent among members of messes who had their mess tents screened than among those whose mess tents were not so protected against the invasion of flies.

While this paper was to be confined to the influence of flies in spreading typhoid fever, I have taken the liberty to touch upon certain points foreign to this subject; I have also taken the liberty of quoting freely from the report of this commission as affording concise statements and because the statements so made are supported by unimpeachable evidence. It may be argued that the conditions prevailing in an army camp are not such as are ordinarily found in a civil community and that for this reason the statements made in regard to the one should be modified when applied to the other.

In reply, however, it may be said that each community represents, in miniature, a military camp without the military discipline, and that if such conditions existed under military rule as to allow such a spread of infection as took place during 1898, how much more likely would such spread take place in a civil community which

lacks the sanitary supervision practiced in the military camp, provided a focus of infection were given? It is true that in a military camp, the ratio of inhabitants to space of habitation is greater than in a small community, but, in the former, men in the prime of life, the pick, physically, of the country are confined; in the latter, the sick and physically weak are indiscriminately mixed in with the healthy. Another point in favor of leaving the statements already made relating to the one unmodified when applying them to the other. The natural advantages of the ordinary city and military encampment as to drainage and sewerage with regard to removal of human excrement are much the same, with the exception that in the latter, special precautions are taken to make up for the defects left by nature, while in the former, and especially in outlying districts, too much is likely to be left to the Divine Providence.

Every city and town worthy the name has its health officer, sanitary rules and regulations; but here, too often they stop, believing that by creating this office and formulating such ordinances they have taken all the precautions necessary to safeguard the community during epidemics, and overlooking the fact that unless funds, in sufficient amount to insure the proper enforcement of these regulations by this officer, are provided, such rules and regulations stand as a constant menace, inasmuch as they give a false sense of security.

Before closing, I would like to emphasize one point which I trust has already been made clear, viz., that in a disease so universally prevalent as typhoid fever, and one whose mode of transmission is so well understood, the three excretions—fæces, urine and sputum —should be considered the sources of all infection, and in all cases of fever not absolutely diagnosticated these excreta should be held infective and so treated as to render them innocuous.

Of the three, I would emphasize the need of taking special care of the urine, remembering that, in typhoid, we may find the specific organisms in this excretion in practically pure cultures, even when there are no marked symptoms denoting involvement of the urinary

system, and that they may persist in the urine long after convalescence has been well established.

The indiscriminate voiding of both fæces and urine in places not designated for their reception, an act too often practiced after dark in out of the way places, should be made punishable by law, and particularly in the case of urine, which, being practically without odor, escapes the attention of the health department.

If such measures could be taken, two of the chief foci of infection would be removed from whence transference to man by the fly is possible. In this connection it should be remembered that passers by after dark are very apt to soil their shoes with such excrement, carry infection home in much larger quantities than the fly possibly could, and infect their entire house.

It is unnecessary to say that in diagnosticated cases of typhoid absolute disinfection of all excreta should be insisted upon by the medical attendant, and for this purpose nothing is better and cheaper than milk of lime in the proportion of one part of fresh water slaked lime to four parts of water, mixing the materials thoroughly, viz., excrement and solution, and allowing them to stand for thirty minutes before they are finally disposed of, preferably by burning where the water carriage system of sewerage is not employed.

The nates should be cleansed carefully with a disinfecting solution, and all materials so used burned at once.

All soiled bedding or other clothing of the patient should be wrapped in a sheet wet with a 1-1000 solution of $HgCl_2$, removed from the room, and thoroughly disinfected.

Access of flies to the patient or excreta should be prevented; to the first, by screens; to the second, by protecting the bedpan with a rubber covering while disinfection of contents is going on and finally by disinfecting both bedpan and covering.

Access of flies to fæcal matter in privies should be prevented by covering all excreta upon deposit with dry earth or, better, lime.

It would be ideal if that common nuisance, the box privy, could be abolished; but this being out of the question, the next best thing is strict supervision by the municipal authorities requiring the

boxes to be made of some material which will neither absorb the discharges nor allow them to leak out,—such as galvanized iron,—the discharges to be covered immediately with dry earth or lime, the boxes to be properly cleansed at stated intervals, and imposing a heavy penalty for disobeying any of these regulations.

To diminish the fly pest, it should be remembered that according to Howard, ninety-five per cent. of all flies select horse manure in which to deposit their ova, and bearing this in mind, efforts should be made to remove this material from the streets and alleyways to some place where it can be disposed of properly before the ova have had time to hatch.

DISCUSSION.

DR. H. A. WEST: I read a paper last year on the Galveston storm, one of the most interesting features connected with which was the study of the etiology of quite an extensive epidemic of typhoid we had subsequent to the storm. The opinion expressed by a great many was that the results of the storm were not going to produce sickness. But that hope proved unfounded. The terrible sanitary condition left by the storm did lead to sickness of a very serious character. First, we had gastro-enteric disturbances and afterwards we had an extensive epidemic of typhoid fever. There was also a great deal of malarial fever, but the typhoid was the most important feature in the results following the storm. In studying the possible cause of this outbreak, I first thought it might be due to a contamination of the water supply. As an enormous number of water-closets in yards and houses had been overturned, and contents distributed upon the surface of the island, I thought it quite possible that one of the large receiving tanks had become infected from infected dust and spray, but careful study of the matter enabled me, to a large extent, to eliminate this factor from the problem, and to come to the conclusion that the epidemic was due to the conveyance of the typhoid bacilli by flies. A plague of flies was one of the pronounced and most striking results of the immense amount of organic matter which was left on the island after the waters receded. Everyone who went through that terrible ordeal will remember how the flies literally swarmed in countless numbers. It was truly a repetition of the Egyptian plague, and the conditions of that strickened city was such that it was impossible to carry out, for a time, the sanitary measures necessary to mitigate the evil. In connection with this matter, and as tending to explain that outbreak, I would remind, gentlemen, of the relationship which has long been recognized to exist between stables and the occurrence of typhoid. The breeding of flies and

conveyance of infection by them may be explanatory of such relationship. I have noticed frequently a connection between city dairies and the outbreak of typhoid. I do not think we could engage in any more useful task than that of preventing the spread of infections by studies such as Dr. Lord has been carrying on in regard to flies. It is true that the profession, by reducing sickness, will do much to decrease their professional incomes, but that is a matter which they are doing every day, and which they consider their highest aim to accomplish.

DR. CARTER, Galveston: Everybne will heartily concur with Dr. West in the conclusions he has expressed in regard to the important part played by flies in spreading the epidemic of typhoid fever in Galveston after the storm of 1900. But in my opinion there is no doubt whatever that the gastro-enteric disturbance which prevailed immediately after the storm were due to a contaminated water supply. For a few days the people had to use cistern water, and, indeed, water from any source from which it could be obtained. These conditions, however, did not long prevail, and after their disappearance the gastro-enteric troubles stopped. A considerable time elapsed between their occurrence and the appearance of the typhoid fever. In fact, it was about a month later that the latter appeared. It continued from October until February. What was the immediate cause of it? Was it the overflow from these cesspools or the introduction of this specific germ from without? I think it was the latter. I do not think this specific germ was in the cisterns. Typhoid fever did not exist before the storm. It broke out afterwards just in the same way as it is wont to do in army camps. An important point was brought out by the army commission which investigated the outbreaks that occurred among the soldiers during the Spanish-American war. I refer to the relation between the colon bacillus and the typhoid bacillus. Many bacteriologists had thought they were merely variations of one and the same germ—one pathogenic and the other not pathogenic, the same as diphtheria bacilli and the so-called pseudo-diphtheria bacilli. The army commissioners came to the conclusion that the colon bacillus cannot become virulent and cause typhoid fever. In regard to the Galveston storm, Dr. West's studies confirm those arrived at in regard to the military camps, namely, that the infection was brought in from without. A great mass of organic matter was left upon the island, and it is natural to suppose that the infection may have been conveyed from it by flies. One fact tending to show that flies and not the water supply was the cause of this outbreak was that the typhoid affected both those who used the public water supply and those who used cistern water. It is very evident that if the public water supply had been infected the whole town would have been exposed to the disease.

DR. SHROPSHIRE: This subject of the spread of typhoid fever by means

of flies has been well discussed, but I believe that there is another prolific source of infection. In the country districts where different conditions prevail from those in the cities, it is not uncommon for us to have epidemics of typhoid after a long period of dry weather. What is the cause of this? I think the bacilli in the cesspools get scattered by the wind and settle on some article of food. To strengthen this view of the matter, I will tell you a little experience I had. There was typhoid in a family living in an isolated house. The stools were taken out into the back yard and spread on the ground. Rain set in. No typhoid occurred until the next spring, when the May drouth set in. Following that we had an epidemic of seventy-three cases within an area of four hundred yards of that house. All the families affected used different water supplies, and I could only attribute the disease to the effect of the wind in blowing the bacilli.

DR. CROUSE: I would like to call the attention of the Association to the fact that we have, through the medium of the government, great opportunities of obtaining literature on entomology, and we are practically not taking advantage of it at all. Dr. L. O. Howard told me recently that there was really no demand for literature on the subject. I got a paper from him in regard to house flies, which I found of great practical use, and I think other members could derive benefit from reading it and other publications of the same kind. We are too prone to leave out the entomological features in considering the spread of infections. That is one reason why I brought up the question of snakes and spiders at an earlier part of the proceedings of this meeting. We have lately heard a great deal about the part which the mosquito plays in spreading yellow fever and malaria, but I believe that if inquiries were pushed a little further it would be found that common house flies are the greatest agencies for spreading most of the infectious diseases. It is very important that we should pay more attention to these matters. About the time I saw Dr. Howard, I had a case which proved a striking illustration of these remarks. A young man returned home ill. No attention was paid to his stools. Finally I was called in and found he had typhoid fever. The other members of the family were separated from him, but five of them developed the disease, and to my mind the evidence was conclusive that the infection was conveyed by the house fly.

DR. PASCHAL: We are all aware that this disease is due to the typhoid bacillus, and that it may be conveyed by water and flies, but there is little use knowing that unless we take steps to educate the people to adopt precautions against the spread of the infection. It is the duty of every health officer to distribute information as to the means that should be adopted for preventing the spread of contagious diseases. Two years ago we had forty-nine deaths from typhoid fever and suspicion was imme-

diately directed to the water supply which came from artesian wells. It was tested, and with this result, that while the water which was drawn directly from the wells was found to be perfectly pure, that which came from the hydrant was full of infection. We were satisfied that the infection came from a particular reservoir. We made the company clean it out. It had not been cleaned out for twenty years, and was in a fearful condition. We ordered the company to cement it or draw the water direct from the wells. They required the reservoir for the purpose of pressure, and ultimately cemented it at a cost of $10,000. The result was that in one year our cases of typhoid fever dropped 50 per cent., and this year they will probably drop 25 per cent. more.

Dr. Lord thanked the gentlemen who had spoken for the way in which they had referred to his paper and advised physicians generally to look out for infection whenever gastro-enteric trouble showed itself in epidemic form.

On the motion of Dr. Carter, seconded by Dr. Crouse, a vote of thanks was accorded Dr. Lord for his interesting and valuable paper.

SYMPOSIUM ON THE SPREAD AND PREVENTION OF TUBERCULOSIS.

A BRIEF REVIEW OF THE PRESENT OPINION AS TO THE DIRECT INHERITANCE OF TUBERCULOSIS.

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In the older conceptions of tubercular disease the very apparent frequency of the affection in succeeding generations of special families was clearly recognized, and fastened the idea of its hereditary transmission upon the medical profession as one of the most inassailable features of the condition. It was only with the growth of recognition of its essentially infectious nature that this feature became the subject of serious question; the adherents of Koch early insisting that for clear proof of inheritance the disease must be shown present in the fetus at time of birth, either in a certain degree of development or the germs of the disease must be demonstrated in the fetus or the fetal adnexa. The importance of postnatal acquirement from the tuberculous parent or other source was insisted upon. Moreover, it had early been contended that, while the disease in developed degree might be unrecognizable in the child of tuberculous descent, there might be some diathetic or constitutional defect transmitted, as anatomical or functional peculiarities of other type are transmitted, which should predispose to the affection; and with the growth of the belief in the ninth decade of the last century that actual transmission of the infection was unlikely, if not unreal, the belief in such an hereditary disposition became the more pronounced. From further observation and more recent study, however, this view has been materially modified, a number of demonstrated cases of direct transmission of the disease

from parent to child forcing the acceptance of occasional inheritance upon the profession. At present the opinion as to this question stands upon middle ground, denying actual hereditary transmission of the affection as a common means of acquirement, yet acknowledging its reality in exceptional instances; denying the importance of diathetic and dyscrasic predispositon as inherited, yet not refusing absolutely its possible influence. Further, the idea is steadily gaining that among the cases presenting a hereditary transmission of a predisposing structural peculiarity, spoken of under the term *scrofula,* there are a greater or less proportion of actual tubercular changes already existent, or there are already present, perhaps in a latent condition, the tubercle bacilli; and if such view come to complete acceptance our opinion as to the possibility of the heredity of the disease must be correspondingly and considerably broadened.

To the present, particularly since the matter has been receiving direct study, there have been observed among lower animals, especially in cattle, over sixty instances of direct transmission of the disease; and in human pathology over forty similar examples (*Twentieth Century Practice of Medicine,* XX, p. 126).

In cattle the recognition of developed tubercular lesions in the off-spring of tuberculous cows has long been accepted; and this has stood, before the recognition of similar instances in man, as an important argument for the similar possibility in the human species. However, it is an unusual thing that the disease is met in early life in cattle, Nocard (*The Animal Tuberculoses*) having collected statistics from various abbatoirs in large continental cities which would indicate that the disease is encountered in not more than one case out of above one hundred thousand calves killed. Statistics from other sources would indicate a somewhat higher proportion of occurrence, but in none known to the writer is the proportion of this disease in calves found in even one hundredth the degree as in adult cattle. In case of such slaughtered calves, moreover, it cannot be assumed that each individual was tuberculous at time of birth, the brief time intervening from birth to time of sacrifice being sufficient for acquirement of the affection by

some of the ordinary routes. It should be kept in mind, however, that the care of observation about the abbatoir is scarcely that required for certain recognition of lesions of slight development or unusual situation, and that probably all such statistics are too low to be more than approximately true; nevertheless, they suggest the rarity of the actual inheritance of the affection in cattle and at the same time in a measure are confirmatory of its occasional occurrence.

Children of early age rarely show recognizable evidence of the disease in life. Personally the writer has seen an indubitable instance of pulmonary tuberculosis in an infant of a little more than two months age in a children's clinic; in which case the mother gave no evidence of the disease and the father, who was not seen, was described as not affected—thus suggesting the possibility of post-natal acquirement, probably by inhalation, in such brief period. This idea of post-natal acquirement may not be set aside in the study of tuberculosis manifesting itself at even such early age, and doubtless explains a considerable proportion of instances of the disease met with in children of tuberculous parentage, thus weakening all statistics as to heredity based upon clinical study of the disease in the living. However, if one will grant the possibility of a latent existence of the germs of the disease in the child, it must be further accepted as a possibility that the disease may have been transmitted from the parent to the child unborn, to become manifest at a greater or less period after birth; and for this reason such statistics cannot be set aside as entirely worthless. Lantigau, for example, in the *Twentieth Century Practice of Medicine*, ascribes to from twenty to thirty per cent. of tubercular individuals the existence of tuberculosis in the parents, and to sixty per cent. a history of tuberculosis in grandparents and collateral ancestry. Squire (*London Lancet*, December 15, 1894), from an analysis of the children of a series of tuberculous and a second series of non-tuberculous parents, would assert that there occurs an excess of not above nine per cent. in the cases of tuberculosis appearing in the children of tuberculous parents above those of non-tuberculous parentage. (These series include 199 families of tuberculous his-

tory, with 1182 children, of whom 33.71 per cent. became affected; and 275 families showing no tuberculous parentage, with 1745 children, in whom 24.87 per cent. became tuberculous.) This statement of the proportionate excess of the affection in the children of tuberculous parentage must, however, be regarded as probably too low, any possible error tending to its increase because of non-recognition of instances of the disease in the dead weaklings and its existence in latent or healed form in the grown. Were it correct, even though it must ever be remembered as unsafe to jump to conclusions, one would be disposed to set aside such excess as easily explicable upon the idea of post-natal acquirement of the disease from the greater exposure of such children to the infectious influences surrounding them in the presence of their tuberculous parents, a position actually taken by many of the profession. As a mere matter of logic, however, it is impossible to base any conclusion as to the proportion of hereditary instances in the one group upon the number of acquired examples in the other group, the conditions being too dissimilar to permit the establishment of a relation; and, moreover, the actual occurrence of even the small number of true hereditary transmissions as above stated preclude the further maintenance of such belief.

Among the instances of actual transmission of the disease from parent to child may be mentioned as examples the following: Londe (*Archiv. f. Laryngologie,* December 2, 1893) mentions a child dead a few days after birth from a tuberculous mother, showing at autopsy characteristic tubercles in the viscera; Lehmann (*Berlin Klin. Wochenschr.,* July 9, 1894) describes a case of the child of a tuberculous mother, dead within twenty-four hours after birth, in which nodules resembling tubercles were found in the liver, spleen and lungs, and well-developed tubercles in the mesenteric and bronchial glands; Sabourand (*La Méd. Moderne,* October 29, 1892) details the history of a case in which a child born of a mother with definite tubercular lesions in both pulmonary apices, died when eleven days of age, showing at autopsy numerous well-developed tubercles of the liver and spleen. Londe (*supra*) has performed inoculation experiments in guinea pigs with placental

tissues and the blood of children born of tuberculous mothers, in all six cases, of which five resulted in producing in the experiment animals definite tubercular lesions; Bar and Renon (*Le Bull. Méd.*, July 3, 1895) describe the discovery of tubercle bacilli in the blood of the placental end of the umbilical vein in two children of tuberculous mothers, inoculation of guinea pigs with such material producing positive results. Birch-Hirschfeld (*Deutsche Med. Wochenschr.*, March 12, 1891) details a case in which, from a mother dying from general tuberculosis at the seventh month of her pregnancy, a child was removed by Cæsarian section, but could not be resuscitated; at autopsy portions of the liver, spleen and kidneys of the fetus were inoculated into the abdominal cavities of two guinea pigs and a rabbit, in all three instances producing definite tuberculosis. In the placenta of this case there were found numerous tubercle bacilli. Schmorl and Kockel (*Beitr. z. pathol. Anat. u. z. allg. Pathologie,* Bd. 16, H. 2) report the discovery of tubercles in three placentas; and in a separate and earlier paper similar discoveries in four placentas, although the bacilli were demonstrated in but one of these cases (*Centralbl. f. Gynekol.*, July 7, 1894). Charrin (*Jour. de Physiol. et de Pathol. Gen.*, 1899, i. 82) in 1873 first announced the discovery of distinct tubercular lesions of a child born of a tubercular mother (*Twentieth Century Practice of Medicine,* XX, p. 126); while in addition to the above mentioned instances Merkel, Baumgarten and Roloff, Berti, Jacobi, Demme, Rindfleisch and others (*ibid.*) have contributed examples. In addition there are on record a number of instances of congenital tuberculosis without lesions, but in which the tubercle bacilli have been demonstrated aside from the few examples above noted.

From such considerations it may be granted that at least exceptionally the direct inheritance of this disease does occur in human beings, usually as a direct transmission of the bacilli by the route of the placental circulation from the diseased mother, the maternal placenta in many instances being first the site of definite tubercles, whence the bacilli probably advance by direct growth to the fetal portion and enter the umbilical vessels. At times, however, it would seem that through some less definite involvement of the pla-

centa the bacilli are carried from the maternal circulation to that of the fetus. Thus conveyed, the disease is of course first and most probably deposited in the liver of the fetus, but may be carried more or less widely through its tissues. Our knowledge of paternal influence in congenital tuberculosis is even less satisfactory. Clinical observations would suggest that it does occasionally take place from the father, although it is not likely that except in the rare instances it has been immediate, the mother having probably first by one or other route acquired the disease from the father and then transmitted it to the unborn child. It would seem possible, however, accepting the idea that the bacilli are able to retain vitality during a period of enforced latency, that these germs may be transmitted with the seminal fluid to the genital canal of the mother, there remain latent until the product of conception has attained a certain degree of development, after which they may attack the fetal structures to the production of the congenital disease. The proof of such a possibility of latency would not only make credible such idea of a direct paternal transmission, but at the same time would suggest a means of understanding an equally important feature in connection with many of the cases of so-called scrofula—the occurrence, without sufficiently clear mode of infection, of many of the deep-seated glandular, joint and bone tuberculoses in the offspring of tubercular parents. It is quite credible that such parts have been from birth the seat of bacillary presence and that the slight injury preceding the developed trouble (quite too trivial to have caused any serious affection in a healthy individual) has merely furnished the special opportunities required for the assumption of active growth by these parasitic bodies. In this connection, Mafucci's experiments upon eggs are usually considered as a reliable basis for argument. This observer having inoculated beneath the shell a number of hen's eggs with cultures of tubercle bacilli, incubated them; also inoculating a guinea pig and a hen with the same material. Both control experiments were successful. Some of the eggs failed to develop. From the others the chicks were hatched, apparently healthy, and in one or two dying shortly after incubation no tubercles were discovered. In the greater proportion, however, the

chicks after a period of apparent health died with wasting, and after death showed distinct tubercles in their bodies. A similar latency has been demonstrated by Pasteur in connection with the psorosperms of the silk-worm disease known as *pebrine*. These parasites are present in the ova of the moths, and the ova develop into apparently healthy worms; but later they die from the disease, no matter what the surroundings provided for the young worms. It seems entirely reasonable, if such latency is possible, that the bacilli carried in the blood of the umbilical vessels from an infected placenta might after entering the fetus be conveyed to tissues relatively resistent to their development, that in these foci they may become encapsulated and unable from improper nutrition to develop in their usual manner until some accident for distribution or rapid growth arrives, when quickly their presence becomes manifest. If this be the case one should for practical purposes come to regard tuberculosis as a disease far more frequently transmitted directly from parent to the unborn child than is at present commonly accepted, since to the comparatively insignificant number of known instances of demonstrated transmission there must be added a considerable portion of the relatively common tuberculous bones, joints, glands and chronic abscesses of early life; and in addition, further, there can not well be denied the possibility, if the latter series of cases be accepted as in greater or less part belonging to congenital tuberculosis, that there may be a great number of instances in which the bacilli transmitted to the unborn child have in its structures become permanently latent, perhaps in some instances eventually destroyed without opportunity for manifestation. In such individuals, years after birth, however, there might be occasion for the lighting up of the diseased focus; and while such an idea cannot at present be fully substantiated, as a working theory it should not be set aside by the family practitioner in advising the course of life and care for those who have arisen from parentage tainted with tuberculosis.

Human tuberculosis is a hereditary affection: known inheritance occurs in a very insignificant number of cases, although there is reason for belief that the recorded instances represent but a small

part of the cases of actual transmission, the disease often being latent for a greater or less period after the birth of the individual before it becomes defined; transmission apparently in almost all instances occurs from the mother to the child, and by route of the placenta and umbilical vessels, hepatic and widespread visceral tuberculosis being the usual form observed in the child, although the tubercle bacilli may be found in the blood and tissues of the fetus without the presence of microscopic tubercular lesions.

THE PREVENTION OF SURGICAL TUBERCULOSIS.

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The forms of tuberculosis which most frequently come under the care of the surgeon are tuberculosis of the lymphatic glands of the neck, of the bones, joints, kidneys, and peritoneum. More rarely he has to deal with the tubercular testicle, prostate, vesicula seminales, or uterus and its adnexa. The anatomical relations of these organs suggests strongly that the channels by which invasion takes place must be the lymphatics directly in the case of the lymph glands; while bacilli could scarcely be conveyed to kidneys, bones, joints or testicles except through the blood vessels. The bladder, prostate, and seminal vesicles are usually infected secondarily to kidney or testicle, and disease of these organs may be left out of consideration in the study of the prevention of surgical tuberculosis. In discussing this question, I shall regard bovine tuberculosis as capable of producing true tuberculosis in man. It is to be regretted that Prof. Koch's magnificent work has again been shadowed by a premature announcement; but his statement that bovine tuberculosis cannot be transmitted to man has only stimulated other investigators to bring forward fresh proof that he is in error. Ravenel's experiments on guinea pigs and swine, his reported cases of tuberculosis of the skin due to bovine infection; Sim's Woodhead's magnificent work, and cases of veterinarians other than Ravenel's cases who have been infected with tuberculosis while making post-mortem examinations of tuberculous cattle, all prove the identity of bovine and human tuberculosis. Newsholme, in his annual report of 1900 for Brighton, England (a health resort for tuberculous patients), says: "After making the fullest allowance for errors in diagnosis, the following remarkable and suggestive facts are noteworthy: (a) The death rate from tabes mesenterica has remained stationary, while that from other forms of tuberculous disease has greatly

declined. (b) The chief incidence of death from tabes mesenterica is among infants in the first two years of life, these being the years in which uncooked milk forms the chief item of the child's food. The same fact may be expressed in another form, thus: While only 3.6 per cent. of the deaths from tuberculosis of the lungs occur in children under five years of age, 78.2 per cent of the deaths from tuberculosis of the bowels occur at these ages. It is impossible to dissever these statistics from the firm belief that while tuberculosis of the lungs is usually due to direct inhalation of infective dust, tuberculosis of the bowels is frequently caused by the drinking of the milk from tuberculous cows."

In a large proportion of cases of tabes mesenterica, or tuberculosis of the mesenteric lymph glands in children, the intestinal mucosa is not attacked by the bacilli, proving conclusively that these organisms may reach the lymph stream, and therefore the blood stream, from the intestine without any local manifestation of the disease. So too it seems proven that bacilli may pass through the lymph glands and thus reach the blood stream without causing any lesion of the glands. Even in the most extensive pulmonary tuberculosis, one seldom finds apparent tubercular lesions of the bronchial glands, at least in adults, though occasional calcareous nodules are found in them; yet large numbers of bacilli must pass through these glands in all cases of pulmonary consumption. In many cases, too, apparently normal bronchial lymph glands have been found to contain virulent bacilli, and that too in the absence of any pulmonary lesion. Thus many bacilli may reach the circulation through the pulmonary mucosa without producing any local lesion. It is reasonable, therefore, to conclude that the digestive and respiratory tracts are great portals through which tubercle bacilli may invade the blood stream. Whether they are destroyed or find a nidus in some organ or organs and there develop, will depend on the number and virulence of the bacilli, and the resistance of the host.

In thinking of tuberculosis of the cervical lymphatic glands, one observes that the jugular glands are most often affected, and the relation of these glands to the extensive ring of lymphoid tis-

sue which surrounds the naso-pharynx and fauces is strongly suggestive that the tonsils must play an important rôle as a possible source of infection in tubercular, and probably other germ diseases. The abundant adenoid crypts on the dorsum of the tongue forming the lingual tonsil, the deep excavation in the faucial tonsils, the extensive lymphoid tissue of the naso-pharynx, the liability of the faucial and naso-pharyngeal tonsils to repeated attacks of inflammation especially in young people, and the frequency of swelling and tenderness of the glands at the angles of the mandible as a complication of these attacks, are facts which draw attention very forcibly to the pharyngeal ring of lymphoid follicles as a probable portal through which tubercular invasion may take place. The rôle of staphylococci, streptococci, pneumococci, and other virulent organisms in the commoner inflammations of the nose and throat, can only be fully appreciated by the habit of making cultures from these ordinary cases as they are met with in office practice. Tubercle bacilli are very frequently found in the tonsils, though tonsillar tuberculosis is not very common. Altogether it seems more than probable that the tonsils are frequently the source of cervical tuberculous lymphadenitis. One other consideration must be kept in mind when one considers tuberculosis from the standpoint of prophylaxis, namely, the amount of local and general resistance to the disease, the influences which diminish resistance and the means to increase it. It seems to be established beyond doubt that certain individuals afford a more favorable soil for the growth of the bacilli than others, and that this suitability of soil is hereditary. Further, any lowering of the general tone, as by overwork, worry, continued confinement indoors in a vitiated atmosphere, insufficient or improper food, and the depreciated health attending convalescence from other diseases, especially pneumonia, typhoid, smallpox, measles, will render susceptible those normally resistant.

As regards local resistance, while tubercle bacilli can apparently penetrate normal mucous membrane, it seems probable that catarrhal conditions of the respiratory or digestive mucosa favor their entrance. Further, such conditions induce secondary inflammatory disturbances of the corresponding lymph nodes, and lym-

phatic glands which have been subject to frequent inflammation, as the cervical glands in children suffering from frequent sore throat or carious teeth, are deemed more liable to tubercular invasion than healthy glands. The influence of sprains and other joint traumata in predisposing to bone and joint tuberculosis is at best problematical.

Keeping these points before us, let us now consider prophylaxis. No bacilli, no tuberculosis; hence every tubercular patient is a menace to the community, and especially to his own family. I need not again insist on early diagnosis, straightforward dealing by the physician with every consumptive patient, and the constant insistance on the necessity of efficient measures to destroy all tubercular sputum. Again, if the people could only be taught how houses are infected by tubercular tenants, registration and thorough house disinfection would soon be required by law. Above all things, educate the people. And here let me say that one of the most unsanitary things ever invented is fibre floor matting in every form. Nothing can possibly be worse than floor matting that can not be taken up and beaten clean, out of doors. A house in which a tubercular patient lives should have no form of floor covering that can not be taken up and cleaned out of doors daily, or at least weekly, and for the sweeping of rugs the rotary floor sweeper that makes no dust is infinitely safer than any form of broom. No matter how careful one is of sputum, it should be remembered every time a phthisical patient coughs he sends a shower of tubercle laden spray over everything in his neighborhood. A phthisical servant is an ever present menace to a household.

Next in importance to destruction of sputum is regulation of the milk supply. No city dairy whose cows are not tested by the tuberculin test can be trusted to supply uninfected milk. In Europe, from 6 per cent to 80 per cent. of dairy cows tested in different cities proved tubercular. In America, Jersey and Guernsey are especially subject to tuberculosis. Cross bred cows are more resistant. Certain pastures and dairies are undoubtedly infected. It follows that those who own their own cows should have them tested for tuberculosis before accepting them as a suitable source of the

family milk supply, especially where there are children; and where the cows can not be controlled, the milk for the children should be pasteurized at 60 deg. centigrade in a closed vessel, a temperature which kills tubercle bacilli in twenty minutes and does not lessen the digestibility of the milk. Prophylaxis in the individual is above all things necessary where there is a history of hereditary tendency to tuberculosis. It is especially necessary in children and young people. First of all comes general hygiene. Provided the patient react properly and does not get chilly after it, systematic cold bathing, summer and winter, by its tonic action on the vasomotor system, is perhaps the most effective means of increasing the resistance to common colds which we possess. It is equally suitable for both sexes. The morning bath should be followed by five or ten minutes carefully regulated calisthenic exercises so directed as to fully inflate the chest and exercise every joint and muscle in the body. This should be taken in the bedroom immediately before or after the bath, and elaborate apparatus is unnecessary.

Good food, unlimited fresh air, regular open-air exercise, abundant sunshine, are all invaluable. The bedroom, and especially the nursery, should be the best, sunniest, airiest rooms in the house. We spend eight or nine hours daily in our bedrooms, at least one-third of our whole lives, only a short time in the other rooms. Night and day, winter and summer, fresh air and sunshine are necessary in these rooms, and bedroom windows should be open summer and winter. In winter sleep in double flannels if you like, but sleep with your windows open; and no matter how furniture and carpets suffer, sunshine should be admitted freely to every living room.

Next to general hygiene, attention should be given to nose, throat and teeth. My old surgical teacher used to say the mouth was the dirtiest place in the body. Americans, as a nation, are careful of their teeth; those of suspected tubercular tendencies should be doubly so. Teeth, tonsils, naso-pharynx, are all liable to infection, causing repeated inflammation of cervical lymph glands. Systematic cleansing of the teeth at night is really much more important than in the morning. There is no reason why the quiescence of eight hours sleep should give the germs eight hours clear head-

way before they are attacked in the morning. Mouth breathers are peculiarly susceptible to tuberculosis. May that not mean that post-nasal adenoids are aiding the ready entrance of tubercle bacilli to the lymphatics and blood vessels. I do not doubt post-nasal adenoids, and frequently inflamed faucial tonsils, increase the susceptibility to tuberculosis, both medical and surgical, and careful treatment of these affections may be included among our prophylactic measures.

Careful attention to the diet and regularity of the bowels so as to avoid catarrhal affections of the digestive tract is especially necessary in children and those of the tubercular diathesis. So will the least opportunity be afforded for the invasion of the body by tubercle bacilli through the intestines. I am strongly inclined to the opinion that the sporadic cases of tubercular gland and joint affections which we meet with in sparsely populated country towns, may be due to tuberculous milk, and that the bacilli from this source find entrance through the digestive tract.

TUBERCULOSIS IN OUR PUBLIC INSTITUTIONS.

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When the Chairman of this Section requested me to write a paper on the subject just mentioned, I thought I realized the vastness of the field and felt fully my inability to properly cope with this very important subject, and especially so in view of the limited amount of time I had to spare from my official duties; but my interest in the subject caused me to yield to his request, and I found the field even broader than I had anticipated, and I soon found myself enveloped in and overwhelmed by a flood of startling statistics and demonstrable facts.

From this immense amount of matter, all of which is interesting from a scientific point of view, I have culled a few thoughts that impressed me most and give them to you.

I have taken up more or less thoroughly the history, statistics, treatment or observation of five public institutions, or persons connected therewith; three from our own State, one from the government service, and one in the far northeast—Massachusetts. I did this in order to give views from as widely diversified sections as possible, and from persons in various forms of special work in the profession who came upon tuberculosis, as an incidental disease in the causation of other diseases, as well as from the specialist in that disease itself.

The unanimity of opinion existing among the profession as to the arrest or curability of the disease, is surprising; as is the change that has occurred in methods of treatment and management of these cases. The five public institutions that I shall mention are The North Texas Hospital for the Insane, at Terrell, Texas; The State Lunatic Asylum, at Austin, Texas; The Southwestern Insane Asylum, at San Antonio, Texas; The Massachusetts Sanitarium for Tuberculosis, located at Rutland, Massachusetts, and the govern-

ment Sanitarium for Tuberculosis, located at Fort Bayard, New Mexico.

The North Texas Hospital for the Insane was opened for the reception of patients in the year 1886, from that time up to April 1, 1902, the following table of death rate was found, which will be of interest in the study of this subject, towit:

TABLE No. 1.

Year.	Number deaths, all causes.	Number deaths from Tuberculosis.			Per cent. deaths from Tuber-culosis.
		Males.	Females.	Totals.	
1886	37	1	6	7	18.9
1887	54	7	1	8	14.8
1888	36	7	1	8	22.2
1889	44	1	4	5	11.1
1890	30	4	4	8	26.6
1891	50	8	7	15	30.0
1892	71	8	8	16	22.5
1893	66	12	14	26	39.0
1894	52	5	9	14	26.9
1895	59	10	15	25	42.3
1896	65	11	4	15	23.0
1897	41	7	8	15	36.5
1898	56	3	13	16	28.6
1899	63	9	5	14	22.2
1900	69	10	11	21	30.4
1901	62	6	13	19	30.6
1902	56	6	6	12	21.4

TABLE No. 2.

The following is a table of the forms of insanity, from which patients suffered who died from tuberculosis within the past twelve months:

Form of Insanity.	Males.	Females.	Total.
Acute mania	1	4	5
Acute melancholia		6	6
Chronic mania		1	1
Chronic melancholia	1		1
Primary dementia	2	3	5
Recurrent mania	1	3	4
Totals	5	17	22

TABLE NO. 3.

The following is a table of causes of insanity of those who have died from tuberculosis in the past twelve months:

Causes of Insanity.	Males.	Females.	Total.
Domestic trouble		2	2
Heredity	1	2	3
Ill health	1	2	3
Gynecological		1	1
Uterine disease		1	1
Religious excitement		1	1
Traumatism	1		1
Unknown causes	2	8	10
Totals	5	17	22

TABLE NO. 4.

The following tables show the number of persons now in the hospital who are suffering with tuberculosis and the form and cause of insanity from which they suffer:

Causes of Insanity.	Males.	Females.	Total.
Unknown causes	4	14	18
Heredity	3	6	9
Masturbation	3		3
Injury	1		1
Fanaticism	1		1
Religious excitement	1		1
Overwork	1		1
Ill health		2	2
Bereavement		1	1
Fright		1	1
Gynecological		2	2
Pubescence		1	1
Epilepsy		1	1
Totals	14	28	42

TABLE NO. 5.

Form of Insanity.	Males.	Females.	Total.
Acute mania	5	8	13
Chronic mania	1	5	6
Acute melancholia	3	5	8
Chronic melancholia	.....	1	1
Recurrent mania	2	5	7
Primary dementia	2	1	3
Mania epileptica	.....	1	1
Paranoia	.....	1	1
Chronic melancholia	1	.....	1
Senile dementia	.....	1	1
Totals	14	28	42

It is interesting to note in Table No. 1 the wide range the percentage of deaths from tuberculosis takes; going from the minimum of 11.1 per cent. in 1889 to the maximum of 42.3 per cent. in 1895, dropping to 23 per cent. in 1896 and rising to 36.5 per cent. in 1897, becoming lower again in 1899, being only 22.2 per cent. for that year, again rising to 30.4 per cent. the following year and remaining at about that per cent. until this year (1902), when it promises to be lower than for thirteen years past, so far only showing a tuberculous death rate of 21.4 per cent.

In my opinion, this vacillation is due to several causes. For instance, in the year 1889, when the percentage was so low, the institution was new and had not up to that time become in anywise infected or contaminated with the pathogenic germs, and the patients that came to the institution, which had been filled three years before, had either improved from the change from musty, unsanitary jails and poorhouses, or in case of those in the advanced stage when they were received, had died, thus leaving only a small focus from which tuberculous death rate could emanate, comparatively few patients being admitted at that time for want of vacant beds. As the institution grew older and more crowded and less air space was given each patient, tuberculosis increased, just as we would expect it to do under similar conditions at this time, especially if no precautionary measures were taken to isolate the individual suffering from the disease in its active stages. Again, the

milk might have had to do with the infection of many patients, for in the exhausted, devitalized condition of many patients suffering from acute mania, melancholia or primary dementia, we feed them largely on a milk diet and in the ingestion of large quantities of milk, should there be a portion of infected milk given, we can readily see how this disease could and probably would attack a patient laboring under such a state of physical exhaustion. Again, when additions were made to the buildings and the overcrowding was somewhat relieved, and new quarters and surroundings furnished, we see the death rate go down again. We began to practice the closest scrutiny and immediate isolation of tuberculosis patients twenty months ago and already see marked results from the same, our tuberculous death rate promising to be lower this year than for more than a decade.

Table No. 2 reveals some interesting features of this disease; it shows that our cases, at least, are usually engrafted upon an acute or subacute attack of some other disease, for instance, in the twenty-two cases of tuberculosis that died last year, five cases followed an attack of acute mania, six cases followed acute melancholia, five cases followed primary dementia and four cases followed recurrent mania, while only two cases followed chronic mania and melancholia combined, making the percentage following an acute attack of disease 90.9.

Table No. 3 is interesting in that it shows that not a single case, among those who died, came into the institution with a tuberculous history as the cause of their insanity, three cases came with ill health as a cause of their insanity and eight came with an unknown cause, evidently not tuberculosis, or it would have been known. We will admit that the three coming from ill health were all tuberculous when they arrived at the hospital, and we find that only 4.5 per cent. of those who died from tuberculosis last year were admitted with the disease, while 26.1 per cent. contracted it after coming into the hospital, showing clearly that a large per cent. of our cases of tuberculosis contract the disease after coming to our hospitals.

Table No. 4, cause of insanity of the present tuberculous popu-

lation of the institution, shows nothing more than that none of the cases came in under a tuberculous history; neither does investigation from the standpoints of avocation, civil condition or geographical location reveal anything.

Our present tuberculous population represents 2.25 per cent. of the entire population of the institution.

Table No. 5 corroborates Table No. 2, in that the acute forms of insanity largely predominate in the present tuberculous population, thirty-one out of a total of forty-two cases now living in the hospital has an acute form of insanity as an original diagnosis; leaving only eleven cases to all the chronic forms of the disease.

I wrote the superintendents of the State Lunatic Asylum, at Austin, and the Southwestern Insane Asylum, at San Antonio, Texas, and propounded the following questions:

1. What was your death rate last year and what per cent. from consumption?

2. Do you notice any difference in the infection in different parts of the institution, for instance, do you have more on the male or female side; if so, how do you account for the difference?

3. Do you have more in some wards than others; if so, how is the difference accounted for?

4. What has been your experience as to the infectious character of the disease?

5. In your smallpox epidemic did any tuberculous subjects contract the disease, or did you find them equally as susceptible to vaccination with other cases?

6. What, in your opinion, is the proper method to be pursued by the State in regard to this disease as it pertains to our hospitals?

Reply from Dr. B. M. Worsham, Superintendent State Lunatic Asylum, Austin, Texas, was as follows:

In answer to your first question, namely, "What was your death rate last year and what per cent. from consumption?" the total number of cases treated in this institution during the year ending 1901 was 1069 and of this number fifty-seven died, making the death rate 5.33, and of this number eight were consumptives, therefore, the per cent. dying from consumption is 14.20 per cent. I

have not been able to notice any difference in the infection in the different parts of the institution, and the disease seems to be equally divided between the males and females. I am positively certain that the disease is infectious and that the confinement in a crowded building, lowered vitality, and in many cases a predisposition to the disease, furnish favorable conditions for the infection. With these conditions existing in all our institutions for the insane, and the further fact that we are compelled to place patients suffering with the disease in the wards with the other patients, explains why the death rate from tuberculosis is always so great. In our smallpox epidemic we had only eleven cases of smallpox, and none of the patients who had the smallpox showed any evidence of tuberculosis. We have not been able to notice any difference as to the susceptibility to vaccination of consumptives and other patients. In my opinion it is clearly the duty of the State to prepare isolated buildings or wards for the care and treatment of consumptives. It might be interesting to know that for the last five or six years our death rate from consumption has steadily declined, due, in my opinion, to the fact that we have been able to separate those suffering from the disease from those not infected, only in a limited way, however. Another thing which has in my opinion contributed very largely to the decrease in consumptives is the prohibition of the use of tobacco on the wards. By prohibiting the use of tobacco on the wards it not only improves the general tone of their health, but it makes it possible to keep the wards in a much more sanitary condition. It is a well-known fact to all those who have had dealings with the insane that they very readily take to the immoderate use of tobacco, narcotics and stimulants, and that the demented ones will not only use all the tobacco they can get hold of, but they will fish out old chews of tobacco and sputa saturated with tobacco from the spittoons and put it in their mouths. This practice, as a matter of course, is bound to lead to the development of many cases of tuberculosis. Therefore, I think we are not only justified in prohibiting its use, but that it is our duty to guard against its use as thoroughly as possible. With proper ventilation and heat, and the wards of an institution kept in a thoroughly sanitary condition,

and all patients admitted into the institution suffering from tuberculosis placed in an isolated ward, I believe our insane population would be freer from the disease than the same number of people would be on the outside of institutions.

Reply from Dr. M. L. Graves, Superintendent Southwestern Insane Asylum, San Antonio, Texas, is as follows:

Replying to your letter seriatim, I beg to say first: We lost forty-seven patients last year, which was 5.5 per cent. of the whole number treated during the year, and of the number, ten, viz., four males and six females died of consumption, being, therefore, a little above 21 per cent. of our deaths due to tuberculosis. This is a little better record than previous years, as we have had more than 33⅓ per cent. at some times in our history. Question No. 2: In my judgment the terminal dements and others of reduced resistive power are much more subject to the disease, and this is especially true where crowding is bad as it is in this institution. This fact is attested by the further fact that of the four males who died of this disease, three contracted the disease in the third ward where there are more than sixty patients of the demented type largely, but the other male contracted the disease at the hospital, which is always a badly infected point. Of the six females who died of the disease, five were from C ward, and one at the hospital. Of these, five developed the disease on the ward, and one probably had the disease prior to her admission here. Question No. 3: Experience here would, therefore, practically confine the contraction of the disease to the demented and crowded wards. In reply to your fourth question, regarding the infectious character of the disease, I beg to advise you that if the word infectious is synonymous with the word contagious, and means the acquirement of the disease by mediate or immediate contact through poisonous germs, I consider this disease a very contagious or infectious one. My personal experience, here as well as elsewhere, has taught me that consumption is directly due to contact of a healthy with the diseased person. Of our ten deaths last year at this institution, of consumption, all except one were directly traceable to infection from their diseased associates in the same wards. In reply to your fifth question

regarding the vaccination, of the four males, two were successfully vaccinated and the other two were too near their death at the time to be vaccinated. Of the six women, three died before we vaccinated anybody. One did not take, having a very distinct scar upon the arm. One without any scar did not take, and one, the worst of the dements, although advanced in tuberculosis, took very freely. From this small experience a deduction is hardly warrantable, but I do not see any special reason why vaccination should not take, unless the disease were nearing its end. In reply to your question number 6, regarding the State's duty to those diseased in this way, and more especially, its duty to those not so diseased, but who may become so by direct association, I beg to say that my views are very positive and practically in harmony with yours as set forth so well in your able annual reports. It occurs to me that the only sane thing to do in this connection is to isolate tuberculous patients immediately the disease is discovered, and segregate them in cottages properly designed and equipped for their treatment. This is the State's duty to the tuberculous and the non-tuberculous, and it is a positive shame to permit tuberculous patients to infect whole wards of the uninfected with this terrible disease.

We ascertained by writing the superintendents at Austin and San Antonio and propounding the six questions above mentioned, that—

First. All Texas institutions for the care of the insane are in better sanitary and hygienic condition than for years; that their management is abreast of the times and that tuberculosis is recognized and treated as an infectious disease, and that as a result the death rate is now much lower than formerly and is being reduced from year to year, and that we are not only preventing the spread of the disease, but that many cases are arrested which come to the hospital in an already infected condition.

Second. That the disease practically always follows an acute or subacute attack of some other disease. In Dr. Graves's report he states that the enfeebled, demented cases seem most susceptible; in our cases it was those who at times suffered from acute outbreaks that were more often affected. We see in each case that tubercu-

losis follows a devitalized or exhausted condition of the physical and nervous forces, and that males and females are equally susceptible to the disease.

Third. There is no division of opinion as to the infectious character of the disease, all maintaining that it is highly infectious and that it should be treated as such.

Fourth. I undertook to learn something of the susceptibility of tuberculous patients to other infectious or contagious diseases, especially smallpox, but the other two superintendents were more fortunate than myself, and had not had much experience with that disease in their hospital life; my experience in the treatment of seventy cases of smallpox and after doing more than two thousand vaccinations led me to the conclusion that persons suffering from consumption are less susceptible to the infection of variola or to vaccination than the average healthy person. We had many insane and tuberculous patients who were both vaccinated and exposed to smallpox; it was a very low per cent. who became inoculated with the virus, and none contracted smallpox. I have one patient in my mind now who came to the hospital on a stretcher, in an advanced state of consumption and soon after being admitted, smallpox made its appearance on the ward in which he was being treated; there was no history of a previous vaccination and he was repeatedly tried on fresh virus, that took successfully on other patients not affected with consumption, but all to no avail, he remained in quarantine with his ward, was never successfully vaccinated, did not contract smallpox, and is now in fine physical health, having gained over fifty pounds in flesh since coming to the hospital and has shown no tuberculous symptoms for many months.

Lastly. There is no difference of opinion as to the course that should be pursued in dealing with and treating this most insidious disease.

We see that tuberculosis is an infectious disease that is easily transmitted to our fellows by indiscriminate coughing and expectoration, by the inhalation of dust containing tubercle bacilli, and by the ingestion of contaminated food or milk. B. Fraenkel says

"that every consumptive infects at least one person in the course of the disease," leaving the inference that they may infect many.

The various governments, national, State and municipal, are beginning to recognize the infectious character of this disease as well as the ease with which it can be handled and arrested, yet we are confronted with the alarming fact that in 1890 the world's death rate was 268.81 to the one hundred thousand population, but our State has not yet recognized this fact, though she will be forced to do so in time; she is now nineteenth among the States from the standpoint of tuberculous death rate.

Massachusetts deserves the credit for establishing the first tuberculous sanitarium, in 1898. That nature, properly aided, does throw off tubercular invasions is a fact, in my opinion, clearly demonstrable. Then the question of properly aiding nature arises, and I unhesitatingly state that the best way to aid nature in the restoration of those that are already affected, and, moreover, to prevent infection of others, is to send the patient to a hospital properly equipped for the treatment of this disease; the conditions that must prevail for the restoration of the patient are all compatible with hospital treatment, and, in fact, can not be found elsewhere. We expect from hospital treatment to reduce febrile activity, to arrest catarrhal conditions, to reduce asepticity, to improve nervous and circulatory tone, to stimulate digestion and nutrition, to improve environment, and to induce a state of well being both mentally and physically. In order to carry out these conditions to the best advantage, we must first find a suitable climate; in my opinion, the best climate for most cases is one with an altitude of from four to six thousand feet above the sea level, with a temperature with the least range from maximum general average of seventy degrees and a minimum general average of forty degrees Fahrenheit, and it should be a climate low in the table of precipitation. After a suitable climate is secured, then the patient is ready to begin to get well, and to begin with, air and rest are the most important factors in this much coveted prize; light, fresh air, ventilation and breathing space at night, together with sanitation are to be recommended first; remain out of doors all day, if possible without producing

fatigue, practice systematically and daily a method of hygienic gymnastics of respiration. Then comes diet, digestion and assimilation; the diet should consist of raw eggs, oysters, wild game, occasionally fish eaten in moderation, rare steak, milk, butter, vegetables and at times a farinaceous pudding, potatoes or other forms of concentrated, easily assimilable foods that contain a small amount of residue. Feeding can be practiced with benefit at intervals of two or three hours when judiciously done, especially in advanced cases where nutrition and vitality are at a low ebb. The digestive and assimilative powers must be stimulated if we succeed in the treatment of this disease. Professor Osler states "that the arrest and cure of the disease is entirely a matter of nutrition. The whole object of treatment is to fortify the patient's constitution against the inroads of the disease so that the individual cells of the body have the stamina to fight against and destroy the tubercle bacilli. 'All therapeutic measures,' says Marfan, 'should be devoted to this end,' and the earlier such measures are instituted the greater the prospect of cure. According to all authorities, the best method of treatment is to remove the patient to a suitable climate, supply an abundance of nutritious food and administer those remedies the action of which is to help nature maintain the integrity of the tissues and to supply those elements already destroyed by the disease."

In the practice of the foregoing methods we are fortifying the patient so that nature's usual methods of defense can be carried forward. Medication, while very important, is regarded as a secondary or even a tertiary consideration in this disease by our latest writers, and alcohol, once thought to be indispensable in the treatment of this disease, is now entirely prohibited in many institutions for the treatment of tuberculosis. We recognize in cod liver oil, hypophosphites and cognac brandy to a limited extent, remedies of value, as well as the many other pharmacopeial remedies used for intercurrent conditions that frequently arise; the idea that I desire to convey is that there is no specific medication or nostrum used by our most successful men in the treatment of consumption.

The following article on treatment is clipped from the report of the Massachusetts Sanitarium, printed in the *Dallas News:*

"Dr. Herbert C. Clapp, reporting for the visiting and examining physicians, says it has been conclusively shown that alcohol is worse than useless in the treatment of consumption, and that cod liver oil is not indispensable. He says: 'It is interesting to note that in the three years during which our State Sanitarium has been in operation practically no alcohol whatever has been used in the treatment of patients, and yet our success has been phenomenal. For a long time, until within a few years, the almost universal custom (as it is now with some physicians) has been to give it, often in large doses, to every consumptive, as a routine measure, and the doctor who withheld it was looked upon as culpably negligent. The late Dr. Austin Flint, of New York, one of the most illustrious authorities in this disease that America has ever produced, often recommended it to be taken continually in the form of whisky, in varying doses, up to a pint in twenty-four hours, and comparatively few physicians disagreed with him as to the wisdom of such a course. Of late years, however, opinion has been fast gaining ground with many that such treatment is unwise and prejudicial, and that greater success can be obtained without it. Indeed, it is now believed by many eminent phthisiologists that, instead of exercising any antagonistic influence, alcohol is one of the most common and powerful causes of the disease. At the recent British congress on tuberculosis, with expert representatives present from the whole world, the eminent Professor Brouardel, of Paris, in his paper claimed that 'alcoholism is the most potent factor in propagating tuberculosis.' Surely our experience at Rutland, in this bleak New England climate, has proved at least that alcohol is not a necessity in the successful treatment of consumption. Some of our patients have taken a few drops of wine with their raw eggs, to correct the flat taste, but the amount of alcohol thus used has been too small to do either good or harm. Our experience at Rutland for three years would also seem to show that cod liver oil is not, as many practically believe, an indispensable agent in the successful treatment of phthisis. Only a small

percentage of our patients—perhaps five per cent.—have had any at all, and these not continuously. Its use has been restricted to those cases in which little or no weight was gained under the ordinary sanitarium diet, and in these, as a rule, it did not seem to produce any remarkable effects."

It is also said that in the government sanitarium at Fort Bayard, New Mexico, that there is strict prohibition of alcohol in ambulant cases. The various methods of the arrest of pulmonary tuberculosis are described by Williams, in the *Journal of American Medical Association,* who notices, first, "the quiescent tubercle in the form of caseous masses containing tubercle bacilli, which are often found in the lung. Miliary tubercle is sometimes converted into fibroid tissue, but with the caseous masses fresh local infection is quite possible and intelligible. Another form of arrest is that tubercular nodules become obsolescent, surrounded by chronic localized emphysema which prevents the detection of tubercle by physical signs. This is one of the commonest endings of tubercles. The owner of the lungs that have gone through this process is generally a short-breathed individual with a large motionless chest, and is credited with being asthmatic. Many of these cases die of hemoptysis. The third form of arrest mentioned is contraction of the cavity and increase of fibrosis, causing a shrinking of the whole lung, the walls of the cavity approximate and heal by cicatrization, though this is rare."

Many evidences of the arrest of tuberculosis is seen in our post-mortem rooms. These conditions of arrest come about after from four to six months sanitarium treatment, at which time the patient is very much improved or the disease entirely arrested and if proper precaution is maintained in after-life, I might say cured. These conditions must be brought about by hospital methods, as there are many reasons, too numerous to mention, why these cases can not be so successfully treated in the home as they can be in properly equipped hospitals.

We have a number of patients in the North Texas Hospital for the Insane that came to the hospital in advanced stages of tuberculosis, some so weak as to be unable to walk, that are today fine

specimens of physical manhood, having gained many pounds in weight and would never be suspected of ever having been tuberculous. The results were obtained by close observation, dieting, sanitation, open air, and prohibiting the use of tobacco in any form on the wards.

The duty of the State is to establish consumptive cottages at every public institution, where the insane, epileptic or convict, is confined and cause the closest scrutiny, and isolation to be practiced, then we will soon eradicate the disease from the public institutions. There should be established under State care, sanitariums for the treatment of tuberculosis as a protection to its citizenship; and these institutions should be conducted along purely scientific lines, politics having no part in its management. It is truly said by Dr. H. M. Bracken, secretary of board of health, St. Paul, Minn., that "it rests upon physicians in this country, through their various medical organizations, to transform the great body of medical sanitariums into medical specialists beyond and above the influence or control of politics."

PREVENTION OF TUBERCULOSIS IN PRIVATE PRACTICE.

J. W. McLAUGHLIN, M. D.,
GALVESTON, TEXAS.

Since the discovery of the bacillus tuberculosis in 1882 by Robert Koch, the possibility that tuberculosis of man may be finally exterminated has become a reasonable hope. Already the death rate from this disease has been markedly reduced in sections of country and in cities where repressive measures have been faithfully carried out along proper lines. But much remains to be done: the public must be educated, and the co-operation of the people must be had everywhere before complete success can be obtained.

In the war that is now being waged against this the most common and fatal disease of man, as in all other measures seeking to prolong human life and to lessen human suffering, members of the medical profession have been the initial and principal movers, but they alone can not carry forward this work to a successful issue, government authority and aid must be had and doubtless will be forthcoming when the purpose, importance and value of the work is more generally understood by the public. It is therefore the duty of the medical profession particularly, as its members are informed, to see to it that the people at large are informed of the concealed danger of contracting tuberculosis, to which they are constantly exposed.

The part assigned me in this symposium on the prophylaxis of tuberculosis is to indicate what particular part in the crusade belongs to the family physician. The relation existing between the doctor and his patient, and especially between the family physician and his clientele, is of that intimate, confidential and responsive character that the doctor in a great number of matters can secure the intelligent co-operation of the people, particularly in matters looking to the betterment of public health, better than can

be done by any one else. Now the great mass of the people know nothing of the infectious nature of consumption, but little of the danger of its being transmitted from the sick to the well, and nothing of the means whereby this may be avoided. Here, then, is a fallow field of labor and the family physician is the best man to do it. He is the family adviser in medical matters, he has the confidence and can command the attention of his patrons and his opinions in matters of health are respected and usually followed. Besides, he is familiar with the physical diseases, hereditary tendencies, individual predisposition and habits of life of his people. Does not his attitude in the community, his technical education and his professional influence, make it the moral duty of the family physician to become a public instructor in the prophylaxis of tuberculosis? However this may be, there is no doubt but that he of all others can more successfully perform the labor.

The following statement of a few accepted facts of tuberculosis, its etiology, prevalence and mortality will enable one to more fully and clearly appreciate not only the supreme importance of prophylaxis and its possibilities in the saving of human life and in lessening human suffering, but will also indicate the work of individual prophylaxis that particularly falls upon the family doctor to see to.

The bacillus tuberculosis of Koch is the one essential etiological factor in the production of tuberculosis of man. Inherited predisposition or tendencies, vulnerability of the tissue soil, catarrhal inflammations, simple or infections, of the respiratory passages, and non-tuberculous adenites are important contributory causes of tuberculosis, but neither one of these factors nor all combined are capable alone of producing the disease; the germ, the tubercle bacillus is absolutely essential to the development and growth of tubercle and it is as impossible for the disease to develop without its germ as it is for an oak tree to spring from the soil without its seed, the acorn.

THE FREQUENCY OF TUBERCULOSIS IN MAN.

Taking the mean death rate of the whole population to be twenty-two per thousand, and the average of deaths from phthisis, or con-

sumption, to be three per thousand, we find that the deaths from phthisis are nearly one-seventh of the entire mortality. (Hirsch.)

This mortality exceeds the combined deaths from war, famine, plague, cholera, yellow fever and smallpox. "Estimating the total yearly mortality of the world to be 35,000,000, we find that about 5,000,000 deaths are referable to this cause, being the greatest number reported by reliable observers as due to any single disease." (Evans.)

The United States census report for 1890 gives 102,181 deaths due to consumption. Basing his estimates on the census reports, Vaughn concludes that the total number of persons suffering from tuberculosis in the United States is 1,050,000, or one in every sixty of the population. In New York State more than 13,000 deaths occur annually from pulmonary consumption. In the city of New York more than 8000 deaths; in Paris over 11,000, and in London over 10,000 annually are attributed to this cause.

"Tubercle in its various forms at the present day carries off annually nearly 70,000 persons in England. In the form of phthisis, at ages between fifteen and forty-five—the most useful stages of human existence—it kills one-third of the people who die at these ages, and nearly half between fifteen and forty-five."—Ransom.

According to the official returns for Germany (1893) out of a total of 268,500 persons dying between the ages of fifteen and sixty, of whom the cause of death was reported, 88,654 died from tuberculosis—a mortality of thirty-three per cent. for these ages. Leyden estimates the annual death rate from phthisis in that country to be 170,000, and the total living tuberculous patients to be 1,300,000. Statistics show that of a mortality of 250,000 in France, fully 150,000 deaths are due to tuberculosis.—Lartigue.

DISTRIBUTION OF THE BACILLUS TUBERCULOSIS.

That tubercle bacilli are widely distributed and have been found in the dust, adhering to the walls, floors and furniture, to the bedding, carpets and hangings in dwellings, hospitals, prisons and sanitaria where consumptives have resided need excite but little sur-

prise, when one considers the great number of cases of chronic ulcerative phthisis who, either from ignorance or indifference, daily and nightly expectorate from their lungs germ-laden sputum containing millions upon millions of virulent bacilli. Nuttall estimates that the twenty-four hours sputum of a consumptive patient may contain from 3,000,000 to 4,000,000 bacilli. Furthermore, it has been established that sputum containing bacilli expectorated, dried and divided into a fine dust may retain its virulence for seveal weeks. The best-known experiments with dust and infectious tubercle bacilli are those carried out under the direction of Koch by Cornet. Dust gathered from various places, as hospital wards, asylums, sanitaria, prisons and private dwellings where tuberculous people had lived, perhaps died, was injected into guinea pigs and proved infectious in a large proportion of the cases. We may learn from this that the tubercle bacilli contained in the sputum of tuberculous patients may retain their virulence for weeks, possibly months, after it has been dried, divided into a fine powder and scattered to the winds. In the light of this evidence the astonishment that is excited by reading the frightful array of mortality statistics of tuberculosis is changed into wonder that any one breathing air polluted by teeming millions of virulent tubercle bacilli should escape infection. In fact, recent observations indicate that a very much larger per cent. of the population are attacked than has heretofore been known. "The statement has been made by Bouchard that, of the post-mortems of the Paris morgue—generally upon persons dying suddenly—the percentage found with some evidence of tuberculous lesion, active or obsolete, is as high as seventy-five. Large as these figures appear, they are probably very incorrect if, as has been done in Ribbert's laboratory, a systematic inspection is made for the purpose, tuberculous lesions are found in practically one hundred per cent. of adult bodies."—Osler.

Fortunately for the perpetuation of the human race, all persons are not equally susceptible to infection with the tubercle bacillus. There is a difference in what may be called the tissue soil of the body to infection. When the fertility of the tissue soil is plus, the invading tubercle bacilli develop rapidly and grow luxuriantly. On

the other hand, when the fertility of the tissue soil is minus, the invading tubercle bacilli do not develop, or they grow slowly and the lesions produced are strictly localized. Now, while the condition of the tissues of the body, which have been spoken of as tissue soil, but is generally designated as vital tissue resistance, is, I believe, inherent and determines natural susceptibility and immunity in contradistinction to acquired or artificial susceptibility and immunity. It should not be forgotten that the condition is relative and not absolute, and that it may be greatly influenced by environment. For example, bad environmental conditions weaken vital resistance and thereby favor infection. While favorable conditions of environment strengthen the vital resistance and in equal degree retard, check or suppress infection. This is an important fact that should never be lost sight of in the treatment of phthisis.

INDIVIDUAL PROPHYLAXIS.

To stop the spread of tuberculosis by the careless or ignorant consumptive we must begin by convincing him of the wrong he is doing to himself and to others by the manner in which he disposes of his infectious expectoration. Such a patient should never expectorate except into a proper receptacle. He should never expectorate into a handkerchief, since the dried sputum in the handkerchief becomes disseminated when it is unfolded; besides, there is danger of the patient reinfecting himself at this time by drawing into the lungs infectious material during the deep inspiration that precedes the coughing spell.

In all places where consumptives who are able to be about are likely to be, there should be placed at suitable distances a sufficient number of properly constructed spit-boxes. They should be easily accessible, placed at a convenient height, supplied with lids that will screen the contents from flies, and so constructed that they can be easily and safely cleaned.

A suitable spitting-box for use at home is made by Seaburry & Johnson. It is made of impermeable pasteboard, with turned-in top edges, and fits into a metallic frame with handle and cover. When the cup is filled, the pasteboard is taken out and burned,

with its contents. There is also a sanitary sputum cup manufactured by the Kny-Scherer Company, of heavy compressed paper, with handle and a close-fitting cover. Its cheapness and easy destruction by fire—cup and contents together—make this a very useful cup. Among other forms of spit-boxes are those to be carried about by the patient, in his pocket, and should always be used by him when the stationary cuspidors are not at hand. A patient should always have two pocket cuspidors, so that he may never be without while one is being cleaned. The most thorough method of cleaning any cuspidor filled with tuberculous sputum is to place the spittoon and contents in boiling water, to remain there for five or ten minutes, thorough mixing of the contents with five per cent., or, better, ten per cent. carbolic acid, or 1-1000 acid sublimate solution can be safely relied upon to disinfect.

When consumptive patients can not be persuaded to use the sputum pocket flask, squares of parafined paper should be provided, each square to receive the sputum of one coughing spell. The ends of the paper should then be brought together, twisted, and the little packets carried in a bag or reticule until an opportunity to burn them is offered.

The status of a consumptive, especially one able to be about, should be clearly defined in the community. A consumptive becomes a menace to the public health only through the practice, filthy and unnecessary, of expectorating promiscuously. There is practically no danger to be feared except through this habit. Control the habit and you destroy the danger. If the habit can not be controlled by reason, then it should be done by law. No man has the right to needlessly expose others to danger and no community, through mock sentimentality, should hesitate to enforce necessary sanitary measures in such cases.

THE PUBLIC CONTROL OF TUBERCULOSIS.

LAWRENCE FLICK, M. D.,
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A public danger demands a public remedy. This is a maxim of law which holds under every form of government. So long as tuberculosis was looked upon as a visitation of Providence or a legacy from a degenerate ancestry, governments had no concern with it, because they can not interfere with the doings of Providence nor the private rights of man. Once that it came to be established, however, that tuberculosis is a contagious disease, and consequently a preventable one, governments became responsible for its prevention. This responsibility is predicated upon the contagiousness of the disease.

In order that the public may be aroused to its responsibility in the prevention of tuberculosis, the contagiousness of the disease constantly should be kept to the forefront. There must be no obscuration of the truth nor softening down of terms which express the fact. Tuberculosis is contagious and it should be called so on all occasions. The word "infectious" is not applicable and the word "communicable" is misleading; neither should be applied to tuberculosis. Recently, in addressing the different branches of the government of a State in behalf of a State sanatorium for consumptives, the mischievous effect of the use of the term "communicable" by medical men was made manifest. A discussion just had taken place in a medical society in which preference was given to the word "communicable," and resolutions had been adopted by the society, opposing the position of Surgeon-General Wyman in declaring tuberculosis contagious. My argument for an appropriation on the score of prevention was promptly met by the statement that my premise was wrong, as the disease had just been declared non-contagious by a large body of medical men. Thus it became necessary to again prove what long since has been demonstrated and

what now should be common belief of all. The logic of laymen is often very keen. If tuberculosis is not contagious, it is not preventable, and if it is not preventable there can be no reason why governments should interfere. This is what may be called a short-cut conclusion, but it is good logic. A communicable disease practically may not be a preventable disease, and the word "communicable" does not carry with it the idea of public danger. In order that governments may interfere for the prevention of disease there must be something which the government can do. In a contagious disease the government can prevent or regulate contact, and the duty of the government becomes quite obvious, because the individual can not prevent or regulate contact himself. The word "contagious," moreover, carries with it the idea of public danger and suggests the remedy, public prevention.

Can the word "contagious" properly be applied to tuberculosis? It can, and, in truth, it is the only word which scientifically fits the case. Tuberculosis is essentially a contact disease. For implantation of the tubercle bacillus in a new host prolonged intimate exposure is necessary. This exposure, moreover, must be to a tubercular subject or to a place or thing which has been contaminated by a tubercular subject. Momentary exposure is not sufficient and even repeated casual exposure does not amount to much. In practice new implantations most frequently take place through family, employment, and business relationships, and through occupation of houses which have been occupied by consumptives.

For the public control of tuberculosis, it is necessary for governments, through boards of health,—

First. To establish registration of tuberculosis.

Second. To distribute literature on the prevention of tuberculosis.

Third. To establish sanatoria and hospitals for the treatment of tubercular subjects.

Fourth. To disinfect houses and places which have been contaminated by tubercular subjects.

Fifth. To sterilize clothing, implements and belongings of tubercular subjects before these can pass into the hands of others.

Without registration of tuberculosis it is impossible to control the spread of the disease. The government must first know where a case is before it can deal with it. There has been a great deal of opposition to registration by members of the medical profession, due, no doubt, to a misconception of what it means and of what is to follow in its wake. The unnecessary hardships which often go with the registration of other diseases have raised a prejudice and antagonism against the registration of tuberculosis in the minds of medical men which is a credit to their hearts, if not to their heads. This prejudice and antagonism is unfounded in fact, however. There can be no hardship in the registration of tuberculosis or in what follows if unless it be willfully and maliciously introduced. Tuberculosis differs so from other diseases in its mode of contagion that it requires measures of prevention peculiar to itself, and these measures are all in line with humanity and benevolence. Compulsory isolation of the consumptive is out of the question, and is unnecessary. The consumptive poor are only too glad to go to a sanatorium or hospital where they can be made absolutely harmless and the consumptive middle class and well-to-do can, in nearly all cases, be taught to make themselves harmless. Even these latter are glad to go to sanatoria if the opportunity be given them. Compulsory disinfection of houses which have been occupied by consumptives and the sterilization of clothing, furniture and implements which have been used by them throw a protection around the poor and weak against the avarice of the rich and strong. The registration of one's name as a person suffering from tuberculosis can be no more objectionable before death than after it, especially as in either case the registration is a secret one. In a proper scheme for the prevention of tuberculosis registration before death would have the compensation of bringing protection to those who are near and dear, and who would not sacrifice a little sentiment to save his loved ones from so horrible a disease as tuberculosis!

Boards of health should systematically distribute literature to all persons having tuberculosis, telling them how to avoid giving the disease to others, and to all persons exposed to tuberculosis,

telling them how to avoid contracting the disease. With the very poor they should even go farther and send a representative to the tubercular subject to teach him how to avoid giving the disease to others, and to supply him with the means necessary to do so. It has been urged as an argument against registration of tuberculosis that the family physician can give all the instruction to the tubercular subject which is necessary for successful prevention of the disease. Theoretically this is true, but practically it is not true. Judging from my experience with tubercular subjects I would infer that in family practice the physician never instructs his tubercular patient how to avoid giving the disease to others nor troubles himself much about whether preventive measures are practiced or not. Sometimes the general advice is given to be careful about the spit, but such advice is often worse than useless, as it leads the patient to do the very things which he should not do, namely, spit into handkerchiefs, or old rags, or possibly into the fire or coal scuttle. In order that a tubercular patient may make himself harmless he must place his sputum where it can be sterilized and he must not contaminate his hands, his lips, or anything about him whilst doing so. How to do this must be made very clear to him in all its details or he will not do it; and the importance of doing it must be brought home to him very forcibly or he will not continue to do it even though he begins it. Instructions and information upon this subject, when they come from the board of health, will carry much more weight with the average layman than when they come from the family physician.

The establishment of sanatoria for the treatment of early-stage cases of tuberculosis and of hospitals for the treatment of advanced cases is the most humane and at the same time the most efficient measure which governments can inaugurate for the control of tuberculosis. Tubercular subjects are most anxious to go to such institutions because they believe that by doing so their chances of recovery are improved, and in part also because, from fear of the disease, there is more or less pressure brought to bear upon them to leave home. Among the poor, moreover, it is now generally recognized that a sick person is more comfortable in a hospital than

in his home. The money which is necessary for the establishment and maintenance of such institutions quite properly should come from the public treasury. The good to be accomplished is not so much for the individual as for the people at large. In this regard the tubercular subject is much in the same position as the insane person. To take care of persons afflicted with such diseases is a duty and not a charity, and governments must not seek to evade the duty because its performance at the same time extends a charity.

The disinfection of houses and places which have been contaminated by tubercular subjects is so clearly a government function that the duty of the government in the matter follows as a corollary upon the establishment of the contagiousness of tuberculosis. This being so, it is surprising how little has been done by boards of health in this regard up to the present time. The contamination of houses and places by tubercular subjects has been clearly demonstrated by a number of investigators more than ten years ago, and yet up to the present time but few boards of health have inaugurated an efficient system of disinfection of premises which have been occupied by consumptives. For the disinfection of such premises absolute cleansing is necessary. The tubercle bacillus as given off by a tubercular subject is cached in broken down tissue and when this tissue has dried is protected against gaseous germicides. To rid a room which has been occupied by an uncleanly tubercular subject of tubercle bacilli it is therefore necessary to remove every particle of tubercular matter or to sterilize such matter through and through. In practice this can best be accomplished by scraping and scrubbing the walls and scrubbing all the woodwork. Proper sterilization of premises which have been occupied by tubercular subjects before new occupants take possession of them would undoubtedly materially lessen the number of new implantations of tuberculosis.

Sterilization of clothing, implements and belongings of tubercular subjects before they can pass into the hands of others should be practiced systematically and exactingly by boards of health in every community. I repeatedly have been able to trace new implanta-

tions of tuberculosis to the use of objects which for a long time had been used by tubercular subjects. As illustrations I may mention a woman who contracted tuberculosis by wearing a fur coat which had been left to her by a consumptive; a letter carrier who took the route of a consumptive letter carrier as substitute and carried his bag; a machinist who was promoted to a consumptive machinist's lathe; and a musician who used a consumptive's flute. Charity and economy frequently prompt people to give away the belongings of deceased people to some poor relative or friend. The belongings of consumptives, unless thoroughly sterilized, are indeed Greek gifts, and it is terrible to contemplate the far-reaching sorrow and misery which such gifts may hide under the cloak of beneficence. It is surely the duty of the government to protect people against such dangers.

In support of public control of tuberculosis as a proposition standing by itself it would be superfluous to make an argument at the present day. If tuberculosis is contagious it is the duty of every civilized government to control it. That tuberculosis is contagious will scarcely be called into question by any one who has even the most elementary knowledge on the subject.

DISCUSSION.

DR. J. E. THOMPSON, Galveston, in opening the discussion on the papers of Dr. Flick and Dr. Keiller, said: So much has been said in these papers with which we all agree that there is not much opening for discussion. Their trend is the prevention rather than the cure of the disease. This is a very necessary and important matter for us to consider. We ought to prevent surgical tuberculosis under all circumstances. I feel strongly on this point, because of an experience I had in my own household. I found that my boy had a gland in the neck affected. I had to consent to an operation. It was performed by Dr. Keiller, who found what was described as a pre-tubercular abscess. The operation was successful. It made me excessively careful in regard to the hygienic arrangements of my house. Among other things I purchased a cow, and had the tuberculin test applied to it. Now we get all our milk supply from it. There is no doubt that the boy contracted the disease through the digestive tract. With reference to surgical operations in other parts we cannot be, by any means, so certain. Tubercular kidney and tubercular testicle will be found

showing themselves without any apparent cause. Probably they also have their origin in the digestive system. The treatment of the actual condition is very unsatisfactory; prevention should, under all circumstances, be aimed at. The number of cases of tuberculosis that are found affecting all the organs is perfectly dreadful. In Galveston I have been particularly struck with the prevalence of tuberculous kidneys, while on the other hand I was pleased to notice the absence of the disease from the bones and joints. It would seem that it is only when the people get more thoroughly saturated with the disease that it attacks the bones and joints. What a dreadful scourge it has become in large cities like London and Manchester has often been described, but can hardly be realized. The remedy for this awful state of things depends entirely on prevention, and if it were necessary to string up the landlords who say they do not care a damn for the health of their tenants, I would say, "String them up."

DR. DAVID R. FLY, Amarillo: We are all agreed upon one point, and that is the great importance of adopting every conceivable precaution to prevent these forms of infection from being spread.

DR. WALTER SHROPSHIRE: One thing which has often struck me is the fact that we should have so much more difficulty with these tuberculous affections of the glands in young people than we have with hip-joint and other forms of disease. It shows that there must be some other factor at work producing infection.

DR. M. M. SMITH: I do not wish to take up the time of the Association, but I think this is one of the most important subjects we can discuss. To my mind it seems there are three essential elements in the production of the condition in question: (1) The bacillus; (2) debility; (3) an abrasion. In other words, there must be something in the intestinal or respiratory tract whereby the bacillus gets admission to the system. Persons who have had an attack of the grip should be especially warned because of their weakened state against going into centers where they will be liable to get the bacillus.

DR. KEILLER, replying on the discussion: I did not take up the phase of the subject referred to by Dr. Shropshire. The lymph glands are, no doubt, peculiarly liable to affection in childhood. As to the bones, the fact of their growth may make them subject to injury and inflammation to an unusual degree. As to the necessity for precaution against the spread of infection, I agree with everything that has been said. It would be a good thing if the druggists were to expose small sputum cups for sale. I would advise, however, against the use of aluminum cups, as they will not stand boiling. They ought to be of glass, porcelain or metal.

SECTION ON GYNECOLOGY.

OPERATIVE TREATMENT FOR RETROVERSION OF UTERUS.—CHAIRMAN'S ADDRESS.

J. T. FEILD, M. D.,
FORT WORTH, TEXAS.

In the great majority of cases of retroversion I believe in conservative treatment, and have been patient and forbearing in my work, treating these cases month after month by use of electricity, glycerin and icthyol, boro-glyceride, hot douches (water 110 to 115) with hips elevated, or have them take knee chest position, douche lasting twenty to thirty minutes and preferably given at bed time that it may be followed by several hours rest in bed. Have also had the patient come to the office twice a week or on alternate days to receive pelvic massage, with attempts to replace the uterus, using dorsal position and stretching adhesions. Also taking advantage of the knee chest position, using Sim's speculum to retract the perineum, seizing cervix with bullet forceps or vulsellum and gently pulling it down, thereby straightening uterus, which is often flexed. Now using ball of cotton by means of dressing forceps you can push the fundus upwards and forwards, stretching the adhesions that have been weakened and partially absorbed by the previous treatment. The uterus becomes more movable and the patient is greatly benefited for we know that it is the fixed uterus that gives trouble and that frequently a uterus in bad position, which is movable, gives no pain or other unfavorable symptoms. Hence, if the uterus is loosened and rendered movable, your patient will be prompt and persist in coming for treatment, and will tolerate considerable pain, for she experiences and recognizes the benefit received. After each treatment the medicated cotton tampons are placed around the cervix and balls of wool surrounded by cotton

are so placed in the vagina that they will hold the uterus in as good position as you can place it at each treatment, till finally the retroverted uterus can be brought into anteroversion or normal position with the previously tender and sick ovaries relieved and up out of harm's way—not in the surgeon's alcohol bottle.

If you are an expert, not just a common laparotomist or hysterectomist, but an expert gynecologist, you may complete the cure by a well-adjusted and properly fitted pessary, which will act as a sentinel on guard and prevent the uterus from becoming retroverted.

Do not just stick the pessary in the vagina and expect it to replace and cure the retroverted uterus. The instrument has no such powers and, if used with such an idea, it will work boundless mischief.

I saw a patient who had two pessaries in her vagina (who was suffering from stone in the bladder). Diagnosis of tipped womb made, and this multiplicity of pessaries used for its treatment by different doctors. First one made diagnosis and inserted pessary; patient received no benefit. She called on another doctor and he stuck in another pessary. Still receiving no benefit, and all her money gone, she called at one of the charity clinics, where the pessaries were removed and she was found to be suffering from stone in the bladder.

But, as previously stated, in judicious hands a properly fitted and adjusted pessary plays a valuable part in the terminal treatment of the cases first referred to until finally the instrument can be dispensed with and you have the satisfaction of knowing that you have accomplished something which others and yourself have tried to do, and ever so faithfully, but have met defeat.

It is in just such cases, after patience and long suffering have ceased to be virtues, that I recommend an operation. To such as are not satisfied with the various surgical procedures that have from time to time been brought forward with such wonderful ingenuity this operation recommends itself for its simplicity. It is the Webster operation requiring a laparotomy which, if done in a skillful

manner, is without danger, hence laparotomy is often resorted to for diagnostic purposes.

We should be up to date and secure the ideal results of our best surgeons; this we owe to our patients and to surgery. It is not emergency work that one has often to do, whether prepared or not, or life is lost; but a deliberately selected operation to relieve your patient of the distressing symptoms and invalidism often resulting from retroversion.

PREPARATORY TREATMENT.

Under this head there is a marked change. The severe purgation of calomel, salts, comp. licorice powder, etc., is being given up. Simply a dose of castor oil the day before, with high rectal enema on morning of operation. It is found that shock and thirst are less and gas pains are things of the past. It is a good plan to teach the patient how to drink hot water before the operation.

There is nothing new in the preparation of the operative field; of course, it should be done very thoroughly. The patient's mental condition is very important; she should have entire confidence and go under the anesthetic with hope and reliance. It is thought to be less dangerous, and the patient goes under the anesthetic much sooner and with less chloroform or ether, if she is placed in the Trendelenburg position, and in such position the intestines and omentum are up out of your way while making the incision. The incision should be in the median line below the umbilicus, four or more inches long. Give yourself enough room to do your work easily, for if you close the incision properly its length does not amount to so much. Above all things, have a sharp knife and go carefully down to the aponeurosis of the recti muscle, avoiding the linea alba. Now take time and secure all bleeding points—hurry does not indicate skill—dry the wound and incise the aponeurosis, but do not touch the muscle with the blade of your knife; use its handle to separate the muscular fibres and you will be gratified to have a dry wound. After separating the fibres seize the subjacent tissues with forceps and carefully cut between their points until you reach the peritoneum. If in doubt as to whether you have the

peritoneum or bowel, do not cut exactly between the points of the forceps, but below them, and if it is the bowel the knife will cause hemorrhage and peristalsis and the intestine crawl out of the way so you can recognize it. After entering the peritoneum the incision may be easily enlarged by the knife or scissors, as the Trendelenburg position has the omentum and intestines up out of the way unless there be adhesions. By means of abdominal pads they are packed up out of the way that they may not come down during the operation to complicate and interfere with your work. The next step is to bring the uterus and its appendages up, separating adhesions if there be any, seizing fundus by tenaculum forceps that it may be kept up by an assistant while you inspect and treat the appendages.

Now comes the operation. Take hold of the round ligament about one and one-half inches from the uterus, owing to how much slack there is in the ligaments. Carry it with the point of your forceps backwards just under the tube and ovarian ligament; make pressure by having the assistant bring the uterus forward that you can see and feel the point of forceps pressing the broad ligament close to the uterus just under the tube and ovarian ligament. By making slight nick over point of forceps they, with the round ligament, can be easily thrust through and the ligament secured by catgut suture passed through the loop where the ligament is bent upon itself in the grasp of the forceps; the forceps removed and other side treated in same way. The two loops of the round ligament are tied together by the catgut suture. Peritoneum over posterior surface of uterus sufficiently scraped by point of knife to cause adhesive inflammation, to which the ligaments are sutured, using chromatised catgut. Abdominal packs removed, patient lowered, and the abdominal wound closed.

In closing abdominal wound we have as many methods as we have for perineorrhaphy. Longitudinal suture by using bronzed aluminum wire, suture for peritoneum, needle entered at lower angle of incision passed through abdominal wall to the peritoneum which is clos[illegible]ngitudinal stitch, needle re-enters abdom-[illegible]ve upper angle. Another enters just

below the first which secures the fascia, while a third enters just below this to secure the skin. By pulling on the ends of these sutures, which are left about three inches long, the tissues are accurately coaptated. The ends of these sutures are bent over onto the gauze that is placed on the wound as dressing, other gauze placed over all and the wound dressed in the usual manner.

The tier suture, using catgut for peritoneum and fascia, silkworm gut for skin, is the most common. I prefer the figure of eight suture as applied by Dr. Murphy. Using silk-worm gut needle enters fascia, skips the muscle to enter peritoneum, which is rolled outwards like a scroll so the needle enters its inner and emerges on its inner surface, crosses over and takes a bite of the peritoneum on the opposite side in the same manner. When the sutures are tied there is no raw surface of peritoneum exposed, as the cut edges are rolled into the wound. The needle now enters the under surface of the fascia of the opposite side, passes through taking a good firm hold of the fascia, crosses the wound, enters the under surface of skin, emerging about one-eighth inch or less from its cut surface. Needle removed from suture and threaded onto opposite end (unless you use two needles to each suture), crossing wound, entering under surface of skin, emerging as on opposite side. This, when tied, making a perfect figure of eight, holding fascia, peritoneum and skin in firm apposition equal to if not better than the three tier sutures. I would like to suggest that you look into the method used by Dr. Emil Reis, of Chicago, in the after treatment. His paper, "Some Radical Changes in the After Treatment of Celiotomy Cases," was presented to the Section on Surgery and Anatomy at the fifteenth annual meeting of the American Medical Association, held at Columbus, Ohio, June 6 to 9, 1899.

During last October I had the pleasure of seeing quite a number of his celiotomies and kept track of the after treatment. Patient allowed to turn about in bed at will immediately after operation. In twenty-four hours bowel movement secured by enema if they did not move of themselves, as they often did, for they had not been completely emptied before operation. After

twenty-four hours, if patient desired, she was allowed solid food—meat, bread and vegetables. The hospital tray for the convalescent or well patient was brought to them and they were allowed to select and eat what they desired, the only injunction given was to chew the food thoroughly. Allowed to sit up on second day, walk into operating room and get upon the operating table without assistance, where the wound was exposed and examined. Patient allowed to leave hospital and go home on twelfth day. One witnessing this work will not be so strict in the preparatory or after treatment of these cases, but will be exceedingly strict in his asepsis.

Since writing the above it will be of interest to report the result of my first operative case:

Mrs. — presented herself for operation, which she demanded for she suffered greatly; was never without pain, and life was a burden. She was emaciated, neurotic, hysterical; had extreme dyspareunia and the approach of menstruation was dreaded as a fearful ordeal, requiring large and increasing hypodermics until the morphine habit was about established.

She had gone the rounds of the doctors and their non-operative methods. She was desperate and wanted something radical done. Pan-hysterectomy not objected to. The Webster operation was explained, which she gladly accepted, as I did not hesitate to assure her of its good and permanent results, for I was enthusiastic, having a short time before witnessed the operation performed in such a skillful manner by Dr. Turk, of the Post-Graduate Medical School of Chicago, and it recommended itself to me as I did to her and to you. But I must tell the story.

The operation was done without a hitch; her recovery uneventful. The old pains relieved from the start. The uterus was extremely retroverted; fundus between uter-sacral ligaments with a large, tender and inflamed ovary under it. The whole hand had to be carried into the pelvis to reach and bring up the fundus, and with it of course the ovaries. The patient was up and about in twenty days; her improvement was rapid. She gained flesh and her health was restored. Menstruation normal and without pain.

Her physician after repeated examinations found the uterus in

normal position, no pelvic pain, ovary with great difficulty could be palpated, and he stated that her condition and the result of the operation was ideal. After four months her old symptoms returned and she called for examination. Gave history of a slip from step of moving car and striking with great force upon her buttox and not feeling well since. Examination revealed uterus in its old retroverted position with descended ovary.

What lesson does this case teach?

First. That the operation is a success if it can be made permanent.

Second. That catgut is not sufficient; that it needs the assistance of a more permanent suture to hold the work.

Third. By the use of silk to unite the loops of the round ligament embracing the posterior wall of the fundus the work would be permanent, or would it be wise for the patient to wear a pessary for a time till the adhesions became firm, as is often done after the Alexander operation?

I witnessed Dr. Harris do his operation, which is taking a V-shaped piece out of the broad ligament, the base of the triangle being the round ligament. The ligament is reunited by a catgut suture and the uterus held in position. It is a beautiful operation. Still I prefer the Webster operation for there is no tissue removed. The continuity of the ligament is not interfered with and, if a silk ligature is used to unite the ligaments, the results in my opinion would be permanent.

OPERATION FOR COMPLETE LACERATION OF THE PERINEUM WITHOUT LEAVING STITCHES IN THE BOWEL.

C. E. CANTRELL, M. D.,
GREENVILLE, TEXAS.

So far as I have been able to find there has been but one method practiced, other than the one I am going to describe to you, without putting stitches in the rectum, in operating for complete laceration of the perineum, and that is to clamp the rectal mucous membrane and burn it with actual cautery after the other steps of the operation have been completed. This I have never tried, but should do so if I did not think I have a better method of keeping stitches out of the bowel, in this the most troublesome of all fields that I have ever left a stitch in.

I have found no suture material that did not give trouble if left there. There is danger of fistula, fissures or ulcers following, and the stitches when left are most difficult to remove, and do all sorts of mischief if left to come away or absorb.

The condition which this operation is intended to relieve is the result of child-birth, and as soon as the sphincter muscles are severed the situation is relieved so that I have never seen the recto-vaginal septum divided to the extent of more than one and one-half inches.

The steps of the operation are, first, the preparation of the patient for an aseptic operation in this field, all of which you can find laid down in any text-book of recent date. Patient anesthetized and in the lithotomy position, legs elevated and held in place by Clover's crutch, or the leg rest usually found on a surgeon's table.

Begin at a point on a level with the upper part of the bowel if it were intact, make an incision through the scar around to a corresponding point on the other side with a knife, then make an incis-

ion on either side from a point as high up as you have decided to go to close the vagina as low as the center of the rectum, crossing the points of beginning and ending of the first incision; this makes what is described as the "H" shaped incision, with the transverse bar much nearer the bottom of the letter.

This makes a vaginal and a rectal flap, each of which can best be handled with a "T" forceps, as more pointed instruments tear the tissues. Now comes the separation of the two walls which make the partition between the rectum and vagina. This is the most tedious step of the operation and should be done by blunt dissection with great care not to break through either one, always giving the greatest care to the rectal side.

Carry the separation high enough to liberate the rectum sufficient to allow the upper angle of the rectal wound to come to the outside without dragging on the vaginal wall, which should not be pulled down at all. This is an easy thing to do as the rectum is a loose pouch capable of being drawn down several inches without being taken loose high enough to reach the peritoneal coat. The bowel should be taken loose on either side far enough to allow the anterior wall to drop to the outside without traction. When this is done, and all spurting vessels have been either tied or twisted, the wound washed with sterile water, you are ready for the sutures.

Silk-worm gut is the material to be used, and the ones to close up the wound should be inserted as follows: Use a perineal needle, eye in the point, insert one-eighth inch from the edge of the skin at the lower angle of the wound on one side, being careful to pick up the sphincter muscles, emerge at the center of the anterior rectal walls high enough to hold the bowel in place, thread the needle and withdraw it, bringing the thread out with it. Insert on the opposite side in the same manner, emerging at the same place, take up the other end of the thread bringing out on the opposite side. This is the most important stitch as it should hold the sphincter muscle in place and the bowel as well. The next perineal suture should be inserted one-fourth inch above in the same manner, and so on until enough have been applied to close up the wound, when they should be drawn up, beginning with the lower one, and carefully shotted.

Now the anterior lip of the anus should be sewed with interrupted sutures of silk-worm gut to the skin, being careful to make it fit as well as possible. If there are bruised or superfluous bits of tissue they should be clipped off with scissors before sewing. Next sew up the vaginal membrane as you would for a denuded colotomy, shotting all sutures. The patient is now ready to dress, which should be done in the ordinary way with iodoform gauze and a "T" bandage. You may put a drainage tube wrapped with gauze in the rectum if you like. I have never tried this, but at times wished I had, to allow the escape of gas; have always been afraid to try it for fear the muscle which had not been in use for so long would rebel against it.

The after treatment is the same as for operation for partial repair of the perineum. If the nurse can be trusted to catheterize the bladder I prefer not to leave a self-retaining catheter; if not, I would put one in, so that the bladder can be relieved regularly. The bowels should be moved on the third day, after which the patient has her first dressing. From this on the bowels should be moved by enema and the wound dressed daily.

I douche every case thoroughly every day, being careful to dry out the vagina as thoroughly as possible before redressing. Begin to remove the stitches on the seventh day, taking away those that fret most, leaving the others for the eighth and ninth days. The early removal of a single stitch will frequently give great relief without doing any damage to the result.

I have performed eight operations by this method, with good results in every case. Seven of these had been operated on before by other methods. One of these cases I had operated upon twice by other methods. My third effort was by this method and was successful. I hope the surgeons with a wider field will take up this operation and see whether or not it will be as successful in their hands. This is a rare condition, but a most difficult one to relieve by the methods laid down in the text-books.

I am sorry I had not decided to write this paper before I did the last operation so that I could have had it photographed. I had three of the cases reported in my house at one time, and had no

thought of its being a hard matter to find a case to photograph, but I have not heard of a case for more than a year, notwithstanding the fact that I have proposed to my medical friends to do the operation free and go any reasonable distance to do it for the privilege of photographing the different steps of the operation.

DISCUSSION.

DR. NORSWORTHY: I have been very much interested in the doctor's description of this new and original operation. I read a paper last year on a somewhat similar subject, dealing more particularly with deep suture. My custom is to use three rows of stitches, taking them from the vaginal side, but taking care not to penetrate the mucous membrane. I use catgut, and tie a knot in the inside of the vagina. The object of this procedure is to re-establish the floor with a thick substance. I stitch backwards and upwards, getting as near to the vaginal wall as possible. By the process described by Dr. Cantrell, I am afraid you will not get a sufficiently strong floor. Besides, you leave exposed a larger raw surface, which is liable to get contagion from the rectal substances.

DR. CANTRELL: I do not go to the mucous membrane of the vagina at all.

DR. NORSWORTHY: Still, what we want is a thick, strong support, and that can only be obtained by acting on geometrical lines. It seems to me that under any other system than the one I use there is a tendency to draw down the vaginal wall.

DR. CROUSE: There is an operation described by Goelet which obviates some of the objections alluded to by Dr. Norsworthy. The great object is to avoid any *cul-de-sac* or pocket. This is accomplished by bringing together the ends of the sphincter muscle by the Tait process, and then applying a continuous suture. By the process described by Goelet, you do not go through the mucous membrane of the bowels, and you have only two knots and no pocket. The operation is slow, but it will compensate for the time and trouble it involves.

DR. CANTRELL, replying: I prefer to clamp and cauterize the mucous membrane to leaving it free. As to the dragging down of the vagina, that is the very point I wished to emphasize. You do not require to drag the vagina down at all. If you only go high enough, and the operation is performed properly, you will find that there will be no tension. The operation is easy to perform, and it will be found that the ends of the sphincter muscle will soon grow together.

MAMMARY SUBSTANCE IN UTERINE FIBROIDS.

H. W. CROUSE, M. D.,
VICTORIA, TEXAS.

In presenting mammary substance for your consideration, in the treatment of uterine fibroid, I realize that many points will be brought forward difficult of explanation. The many remedial agents derived from the great racemose group of glands secured from the sheep, hog and goat have created for themselves a new medicinal group, known as orotherapy. It is necessary to review the history of the use of these various agents by the medical world, also proper to consider by what train of thought each has been adopted, which in proper sequence leads us to consider their actions, their chemical properties, and finally their clinical results before deciding to accept them as new medicinal recruits.

Brown Sequard, when bringing before the medical world his testicular fluid, stated that all the organs of the body contributed to make perfect blood, that each one yielded a secretion which contributed its quota, and that all made perfect. If one is deficient in secretion, the contribution to the blood is deficient that much. A clever chain of scientific thought started with Shiff, 1859, who first removed the thyroid in animals, later repeated by Reverden, 1882, and Kocher, 1883, which gave as a result clinical manifestation, known as operative myxedema. Further experiments by Shiff, 1884, Buchner, 1890, and others upon myxedematious animals brought forward the phenomena that the various conditions resulting from thyrodectomy could be improved, or even removed, by implanting the thyroid gland of a healthy animal under the skin or within the peritoneum of the one void of a thyroid gland. Dr. George B. Murray, 1891, using these experiments as his base, injected a glycerinated extract of sheep thyroid in men suffering with myxedema, with startling curative results. Shober, in 1898, in a paper on the "Use of Mammary Substance in Uterine Fibroid,"

recalls an interesting historical fact mentioned by Pliny, that it was a common custom among the Greeks and Romans to use the testicles of donkeys in impotency, also that he, Shober, had been told by a trustworthy African explorer that even to this day certain obscure tribes in the interior of Africa practice a disgustingly inhuman cannibalistic operation upon slaves and captives for the same condition. Dr. R. B. Bell, of Glascow, in a paper before the British Gynecological Society, May 14, 1896, states that he was led, through the knowledge of the embryonic origin from the epiblast of the thyroid gland; the known remedial effects of thyroid medication upon the diseased epithelium in the skin manifestations of myxedema; the cessation of metrorrhagia, the improvement of psorosis, to use thyroid gland in the treatment of two cases of cervical epithelioma with good results. Bell further mentions Jouan's attention being called to its effects upon the uterine fibroid, by noticing a case he was treating for myxedema, suffering at the same time with a fibroid, which extended two inches above the navel, and which at the expiration of a year had been reduced to one inch above the pubes. This observation, together with those of Bouilly, Fuffier, Gunnard, Picque and Block, that thyroid hypertrophy frequently in pregnant women underwent retrogression, that thyroid tumors would at times disappear or at least diminish after extirpation of pelvic organs, led him to study the seeming essential relationship existing between the various organs. He noticed the metistalic involvement of the testicles and at times ovaries in mumps; the synchronous changes in the mammary glands and genitals at puberty, in pregnancy and lactation, and evolved his theory that when local disease commences in an individual, the organ which it takes possession of must have departed from a healthy standard, prior to this, and that the weakened organ may have been influenced by a morbid or functionally altered state of an organ in close physiological relationship with it. This was the proper theoretical deduction to make preceding clinical proof. Waller, mentioned by Stehman, reasoning along the same line, stated that these metistatic involvement of related glands proved that the waste of one organ served as the raw material for another, and that this

interorganic relation plays an important part in general metabolism. The question promptly arises, how? Some suppose that the secretion of these special organs effect nutrition by removing toxic substances which result from tissue waste (Shafer); that for example one of the functions of the ovary is to eliminate organic toxins through the menstrual flow (Spillman and Etiene); that the secretion of the thyroid favors uric acid excretion and thus increase nitrogenous demetrition (Vos. Gara, Irsai); while others maintain that general nutrition, and more especially the central nervous system, is affected by this glandular secretion entering the blood (Howell). Taking these points into consideration along with the knowledge that in the phenomena of orotherapy we are dealing with substances derived from the great racemose group of glands, which not alone vary in size, but also in the character of the secretions yielded by each and their physical significance, and we unconsciously enter the study of the pathological phenomena of various gland involvement, and investigate whether a relationship may be proven or disproved to exist between certain ones of them. Every physician of experience can recall a metistatic involvement of the testicle and at times ovary in parotitis, each one utilizes in diagnosing pregnancy, the mammary gland phenomena of pregnancy, is conscious of these gland changes at puberty, during lactation, of the stimulation of the sexual sense by the manipulation of the nipple, of the erection of the nipple during sexual excitement; pathology has proven the synchronous enlargement of the thymus gland and pituary bodies in thyroid hypertrophy. Bell has used Bouilly, Fuffier, Gunnard, Picques and Block's observations of thyroidal change during pregnancy and on removal of the uterus and adnexa; Hulde has further proven in the study of the suprarenal gland removal that the thymus and spleen became enlarged. Shober (No. 2) mentions the inducing of uterine contractions by the nursing of the child during the first few days of pueperum; pain has been noticed by Stehman in the mammary gland previous to menstruation during thyroidal therapy; Hertoghe found that thyroid gland given by mouth increased quantity, but not quality of milk, also that nursing women suffering with diminution of lacteal

secretion synchronous with the appearance of menstruation had the secretion restored; one of my fibroid cases, taking the mammary gland, complained on increase of dose of nipple sensitiveness and mammary tenderness. Pathology also recognized the involvement of the pancreas in diabetes, etc. As to the nature of the secretion of the various glands now being medicinally used, Murray in his Gulstonian Lecture No. 1, in speaking of the formation and absorption of the thyroid secretion, describes the two cells occupying the alveolus as the chief cell, and the colloid; he states that a large nucleus is contained in the former, and that colloid matter is formed in the latter. The colloid, he says, is a true epithelium cell which secretes in two ways—either in droplets in the cells and then gradually extruded into lumen of alveolus, or whole cells break down and be discharged in the colloid substance the matter they help form. In the first the cell continues to secrete; in the other after being destroyed, its position is taken by a reserve cell. As to the methods for escaping of the secretion of the cells, owing to the ductless condition of the thyroid, there are only two ways—by lymphatics or veins. By the lymphatics is the most frequent, as King and Horsley found by pressure of gland that the colloid matter could be squeezed from acinii into interacinious lymphatics, where it could be seen by means of the microscope; Hurthle believes that the secretion escapes into interalveolar spaces through weakened wall of alveola, by intercellular spaces and by rupture. There it comes in contact with lymph which bathes alveolar cells, to be discharged into blood stream in the innominate vein and so distributed to entire economy. Early thought the thyroid secreted a mucoid substance, the retention of which led to an accumulation of mucin in body and productive of cutaneous swelling in myxedema. Investigation has shown that colloid contains no mucin. Accurate information as to the true nature of this substance is scarce, but most have considered the proteids to be the important and active constituent of it. Nolkin considers this thyroproteid, a substance that behaved like an enzyme. Gourley found that a nucleo-proteid was the only proteid to be secured from colloid in quantity that it contained phosphorous. Baumaine and Roos found it contained

iodine in an organic compound with proteid, and named it thyroidin; Hutchins that two proteids exist in gland, a nucleo-albumin which is contained in the epithelial cells and a colloid material which fills the acinni the gastric secretion split up, the secretion of a gland into two parts, one of which is proteid and contains a small amount of iodine, having but slight physiological action, the other non-proteid contains more iodine and all the phosphorous of original colloid, and is non-active in removing symptoms caused by loss of gland than the proteid. As to the substances contained in the mammary gland, Sturrock, of Edinburgh, says that there is a nucleo-proteid in the cells of the mammary gland, which is of a highly complex constitution, containing a carbohydrate and a proteid radicle, the suprarenal has been difficult to investigate as to the nature of the substance secreted by it, and useful as a theripal agent. Auld states that it is an alkaloid. Abel confirms this opinion and he and Crawford call the separated principle "Epinephrin." Takamine, an alkaloid, adrenalin. The nature of the secretions of the testicles, of the thymus and of the pituary bodies have been but indifferently studied, and the nature of their principles, in consequence, unnamed and unrecognized. Among another group of these glands substances long familiar, present themselves, such as the bile, the enzmes of the spleen, pepsin, pancreatin. So, step by step, we are driven to the conclusion that we have in all duct and ductless glands not alone an excretion as ovulation in ovaries, semen in the testicles, milk in the mammary, pancreatic juice in the pancreas, etc.; but also an internal or circulatory secretion which enters the system through the circulation, modifying nutrition (Spillman and Etiene). Does all this not lead one to believe that mayhap there lies within the epithelial cells an inherent egotistical principle, which was demonstrated by Vaughn and McClintock (Ernst) in the germicidal agent of immunity to be, as they found after the proper scientific isolation, a nuclein substance derived from the cells of the various glands, borne in the circulation partly in solution and partly in the form of multinuclear white corpuscles, the so-called phagocyles? In presenting this point further it is but necessary to continue with Vaughn, who believes that the nuclein

passes from the cell into solution, but is unable to say whether this process is due to the breaking down of the cell or to an active secretion on the part of the cell. The next feature of the study of these remedies naturally should be, their physiological effects. Thyroid gland study has demonstrated its principle to be a powerful lymphatic stimulant, utricular gland stimulant, muscular contractor, blood oxidizer (Whitney), capillary constrictor, an inducer of tachycardia, headache, tumors, gouty and rheumatic pains, general debility, persistent vomiting, profuse diarrhea, the tachycardia with its dyspnea fatal at times (Polk). Cunningham considers the unfortunate symptoms to be produced by decomposed animal matter in the thyroid mixture, and not by the essential thyroid secretion; in other words, ptomaines and leucomaines.

PAROTID GLAND.

The special agent it contains has not as yet been separated, its effects being, according to Shober, an absorbent, an anodyne seemingly confining itself to the pathological conditions of the ovaries governed by the following states: so-called ovarian neuralgia or dysmenorrhea, unassociated with extensive pelvic inflammation; enlarged tender prolapsed ovaries, pain occurring day or two before the period and first day or two of period. According to Jack, "it is the best remedy yet brought out in the treatment of dysmenorrhea, relieving as it does the aches and pains of ovaritis, and improving nutrition. Pelvic exudates soften and are often absorbed. Menstruation becomes regular and less in amount when excessive and shorter in duration. The headaches and nervousness so often accompanying the cases are, as a rule, cured, health and spirits revive and, indeed, its action here can be denominated nothing less than specific."

MAMMARY GLAND.

Clinically has been proven to be a muscular stimulant, a nerve sedative, a general reconstructor, when a systemic depravity is induced by a uterine degeneration, as found in myoma, myo-

fibroma and subinvolution—a substance with no depressing effects or detrimental symptoms outside of the contractile pains induced in a fibroid when the dose is given at the maximum point. Sturrock states that its action is due to a nuclean base which is not excreted, but seems to remain in the gland, probably in the nuclei of the cells as active agents in the formation of more mother substance. These may possibly contain the active principle, when the gland is medicinally employed. The modus operandi of thyroid and mammary glands in controlling hemorrhage seem entirely different. Thyroid, an epithelium, utricular gland and lymphatic stimulant and blood oxidizer, mammary gland acts on the uterine muscles, either primarily or through nerve supply, increasing contractile power, thus diminishing blood supply to endometrium and body of tumor (Shober).

OVARIAN SUBSTANCE.

Is mainly used as a substitute of ovarian deficiency, as after double oophorectomy, infantile ovaries, and like conditions, inducing amenorrhea. Chrobak found that by implanting ovarian tissue under the skin or within the peritoneum in case subjected to double oophorectomy benefit to the nervous symptoms of operative menopause would be secured. I have found it beneficial administered in the form of the substance by mouth, controlling markedly the nervous phenomena of complete hysterectomy. Jack says, "Ovarian extracts is indicated in all cases of menopausal nervous symptoms, or when for any reason it is desirable to increase the flow from the uterus. It is now known almost beyond doubt that the ovary has besides its function of ovulation another almost as important, that of internal secretion, and that like the thyroid it secretes an active oxidizing agent spermin that aids in the metabolism of the blood. Marked decrease in the elimination of phosphates have been observed after ovariotomy." "I have taken," says he, "this as a hint and administered ovarian extract in all cases of ovarian disease presenting constantly this symptom, and I have as yet to be disappointed in the results."

SUPRARENAL GLAND.

The active principle has been separated by Abel, which he has named epinephrin. Furth has separated an agent which he calls suprarenin. Takamine, another named by him, adrenalin. Epinephrin and suprarenin are claimed to be contaminated by Reichert, while adrenalin he says is pure. Its principal physiological effects have been found to be as follows, according to compilers for P. D. & Co.:

(a) *The Pulse is Retarded.* By vagus stimulation. Schafer, Oliver Cushing.

(b) *The Force of the Systole is Increased.* By stimulation of the cardiac muscles. Schafer, Cushing. By stimulation of the cardiac motor ganglion. Gottlieb.

(c) *The Blood Pressure is Elevated Secondary to Arterial Constriction.* By peripheral action (vasomotor). Schafer. By peripheral action (on capillary muscular fibre). Shoemaker, Cushing. By central action. Cushing.

(d) *Tissues are Blanched (Mucous Membrane, Peritoneum Skin).* By peripheral action (vasomotor or capillary muscular stimulation). Various observers.

THYMUS EXTRACT.

No practical investigation has as yet been made as to nature of substance, or its active agent, and but little is known only that physiological effect is that it will reduce thyroidal hypertrophy, as in goitre.

TESTICULAR SUBSTANCE.

Outside of the Brown-Sequard investigation of the studies of Claud-Bernard, nothing further has been learned. It has been used in impotency.

The special gland today for our consideration is the mammary, and its effect, when properly given, upon uterine fibroids. The following cases have been reported. Bell, in May, 1898, reported four cases, treated with this substance, all of whom were under thirty-five, so the influence of the menopause should be eliminated. The

length of treatment varied from two to four months. The form of the gland principal was the elixir and platinoids. Of the elixir 3i was given three times a day; of the platinoids ten grains per day. The results were brilliant. One case in illustration in whom a fibroid tumor, the size of a seven months' fetus, as a result of six weeks treatment, had the growth reduced one-fourth of the original size, and ceased to cause any trouble. Another case, small fibroid on anterior uterine wall, which by the marked metrorrhagia induced by it resulting in decided anemia, at the conclusion of eight weeks treatment with ten grains of the platinoids daily. Anemic condition disappeared; general health restored; metrorrhagia absent. Two cases of menorrhagia, accompanied by dysmenorrhea, fibroids absent, subinvolution present, seemingly cured by the mammary gland. Dr. J. B. Shober, of Philadelphia, who was the first to utilize the mammary and parotid glands in this country, reports nine cases. The length of treatment varied from two to fifteen months; the ages of the patients were from twenty-four to thirty-seven—mean average below thirty-five. Five were colored. Sizes of tumor, as in Case 1, perpendicular; measurements, seven and one-half inches; lateral, ten and one-half inches; girth, thirty-seven inches; height, two inches above navel; an immovable globular impacted fibroid. At the expiration of fifteen months girth thirty inches; perpendicular measurement five and one-half, lateral measurement eight and one-half inches. Flow formerly profuse, clots, dysmenorrhea six to ten days; at time of report flow regular, three days, about normal, no clots, no pain, general health greatly improved. His examinations were always made with the patient under ether, before treatment was commenced. In all, the general health markedly improved, the dysmenorrhea, clots, metrorrhagia and menorrhagia were controlled, flow painless and normal. The type of gland substance used, extract and dessicated substance from fifteen to thirty grains three times a day.

Dr. W. R. Pryor, of New York, called my attention to the use of mammary substance two years ago, in the handling of Case No. 1. In this connection, he lauded very highly its effects, and stated, if I remember rightly, that he had utilized and was still observing the

treatment of thirty-three cases of uterine fibroid with it. His results he informed me were more than encouraging.

As to my personal cases, inclusive of the one watched for Dr. Pryor:

CASE No. 1. Mrs. F., æt. 32. One para, two myofibroids, sub-peritoneal type, location posterior uterine wall; area of attachment close to internal os; size, largest, small lemon—other, walnut. Tumors found at accouchment. Case later examined by Pryor. Curetted, given mammary substance five grains three times a day. Metrorrhagia ceased. No flow during lactation. Tumor not examined. Treatment periodical—cessation lactation—metrorrhagia recommenced—dysmenorrhea, clots. Mammary substance, five grains three times a day for six weeks; metrorrhagia ceased, general condition improved. No dysmenorrhea or clots. Length of flow four days. Treatment continued two months. Patient again enceinte. Treatment at Dr. Pryor's instigation dropped. At fourth month of pregnancy patient re-examined. Tumors increased in size, largest three inches by six inches. Patient said a rapid growth had occurred, according to her sensations during pregnancy. Case operated on—vaginal myomectomy.

CASE No. 2. Miss B., single, æt. 32, had noticed a growth two years. Examined January, 1901. Found fibroid connected, left cornua, sub-peritoneal; size, 3x4 inches, globular; metrorrhagia, dysmenorrhea, anemic, practically invalided. Advised curettment; refused. Given Blaud's mass, mammary substance, 5-grain tablet three times a day. Sixth week reported past period seven days long, few clots, dysmenorrhea markedly improved, general condition also improved, able to work. End of fourth month again reported. General health five periods three to four days, no clots or dysmenorrhea. Tumor nodular, reduced to half original size. Mammary continued; seen recently, not examined, patient's mock modesty forbidding. Reported perfect health, periods normal, dysmenorrhea absent. Mammary gland taken two weeks out of month.

CASE No. 3. Mrs. D., æt. 39. Four para; history profuse menstruation for years, gradually extending into metrorrhagia and menorrhagia, dysmenorrhea. Saw her in a profuse hemorrhage,

exsanguinated, packed ice to abdomen, atropia, ergot and styptacin by mouth, together with quiet. Bleeding controlled in two days to a show only. One week later examined. Uterus modular from multiplicity of fibroids, varying from mere nodules to those size of large walnut. Advised Pryor's vaginal hysterectomy; refused. Gave mammary substance five grains three times a day, taken three months. Metrorrhagia, menorrhagia, dysmenorrhea. General condition all gradually improved until expiration of third month. Periods normal in nature and length. Never able to secure second examination.

CASES NOS. 4 AND 5. Both single, æt. 25 and 28. Gave histories of metrorrhagia one and two and one-half years. Dysmenorrhea, debility. No examination permitted. Gave mammary substance, five grains three times a day. Symptoms improved. Lost track of cases. Questionable as to whether they were fibroid.

CASE NO. 6. Mrs. L., æt. 49. Gave history January 19, 1902. First knowledge of fibroid 1890. Metrorrhagia, marked debility, dysmenorrhea, periods gradually increased until they lasted two weeks; clots profuse; very weak. 1892: curetted; improvement. 1893: relief temporary. 1894: went North, consulted several eminent gynecologists, radical operation advised against. 1897: metrorrhagia so severe as to demand twice packing. So weak took months to recover. 1901: while in Canada, severe hemorrhage, demanding packing. Periods after that irregular, flow excessive, every two or three weeks. December, 1901, an attack of hemorrhage; very severe. January 19, 1902, examined; several fibromyonias found. Size small walnut to small orange; situations subperitoneal; laterally located, one on posterior wall; situation low; advised trial mammary substance five grains three times a day, six weeks. Stopped a week, resumed treatment, six grains three times a day. April 9th, when this history was written, still taking same dose. Results no flow for three and one-half months. Slight show once or twice. Since taking the mammary substance the nipples have become sensitive, indicating that the mammary glands are affected by this substance.

In reviewing these cases, there are five features that stand out

prominently. Mammary substance will control menorrhagia, metrorrhagia, dysmenorrhea, improve the general condition, and in proper selected cases of uterine fibroid, where the myomiatous feature predominates, reduce the size of growth.

In presenting a new remedy, or an old one in a new rôle, it is essential to arrive at its true worth to compare it with others, already accepted. We have in the medicinal handling of uterine fibroid several remedies used for years, whose short-comings are well understood. I will tabulate briefly their pernicious influences, together with their companion remedy, and request you to recall the points, well known, needed to round them out in their complete physiological rôles.

Ergot. Failed in about fifty per cent. of cases to arrest menorrhagia and, when successful, at the expense of the general health. Induces gastro-intestinal irritation. Cardiac and general muscular degeneration.

Hydrastin. Beneficial when used briefly. Persisted in, gastro-intestinal irritant. Induces constipation.

Stypticin. Brief use beneficial; results as hydrastin when long continued.

Oleum Engeron. Can only be used where no irritation exists; attacks kidneys, as its colleague turpentine, when persisted in.

Belladonna and Atropia. Used briefly results in menorrhagia and metrorrhagia, brilliant; persisted in produces conditions it first corrects; irritant to brain.

Thyroid Gland. Induces tachycardia, dyspnea to a dangerous extent at times, gastric irritation, profuse diarrhea.

Bromides. Induces bromidism and its chain of evil symptoms.

Digitalis. As adjuvant to ergot, results fair; alone fails to control.

Electricity has given but slight result and then only when used as a canterant, indicated in same condition as curettment is dangerous. Has not stood test, does not stop growth, induces peritoneal adhesions, rendering subsequent operation difficult.

Curettage. Involves anesthesia and invasion of the uterus cav-

ity, not once, but repeatedly; and the ideal light operative course preceding the use of mammary substance.

Ligation of uterine artery is an operative procedure, and is still in the balance, experience being rather against than for. Removal of ovaries raises the question to a strict capital operative procedure, and suggests the question of when doing a laparotomy it would not be best to do a radical one, *i. e.*, hysterectomy.

Myomectomy. Either submucous or subperitoneal, and total extirpation, are strictly operative treatments and should not be compared when suggesting a medical treatment.

Mammary Substance. No deliterious effects as yet noticed, except contractile pains in tumor, when given in maximum doses. This symptom promptly subsides when remedy is stopped and reduced.

Through the medium of two letters, one from the introducer of mammary substance to the notice of the medical profession of America, Dr. John B. Shober, of Philadelphia; the other from Professor W. R. Pryor, of New York, I wish to illustrate the type of cases in which the gland has been of benefit and in which it has failed.

1731 PINE ST., PHILADELPHIA, April 6, 1902.

H. W. Crouse, M. D., Victoria, Texas.

MY DEAR DOCTOR: In reply to your letter of March 30th, requesting information in regard to the value of mammary gland substance in cases of uterine fibroid, I beg to refer you to the enclosed reprints of two articles which I published about two years ago.

I am still using the substance with satisfaction, and have nothing new to add except that it has been found of positive value in a few cases of the vomiting of pregnancy.

I employ a tablet of dessicated mammary gland of sheep. Each tablet contains two grains of the dessicated powder, which represents twenty grains of the fresh gland. One to two tablets three times daily with food should be taken for periods of weeks or months, depending upon the nature of the case. The mammary gland is said to contain certain nuclein bases which are not excreted, but seem to remain in the gland, probably in the nuclei of the cells, as active agents in the formation of more mother substance. (Sturrock, *British Medical Journal*, September 17, 1898, p. 776.) These bases probably contain the active principal upon which

depends, in a measure, the normal metabolism of the uterus, and upon them may depend the value of the substance as a therapeutic agent. Preparations of mammary gland, when fed to women, seem to stimulate the uterine muscle, increasing its contractile power, thus diminishing the blood supply to the organ. I have used it with benefit in the following classes of cases:

1. In uterine fibroids it controls menorrhagia and metorrhagia, relieves pain and dysmenorrhea, and in some cases diminishes the size of the growths. Personally, I believe radical operation for most uterine fibroids, especially as they are usually complicated by adnexal disease and many by degenerative changes in the tumors. In cases, however, which did not call for immediate operation, and in others when it was refused, I found mammary gland substance of decided value. In cases characterized by marked anemia, I think I have placed my patients in better condition to stand the operation by controlling the bleeding for several months, or until the hemoglobin percentage and blood count showed a positive improvement.

I am not prepared to make any positive statement in regard to the absorption of fibroid nodules under this treatment. Two cases, however, who had been under my treatment with mammary gland substance for two years, in both of whom a fibroid nodule the size of an egg could be felt before treatment was begun, and in both of whom the diagnosis was confirmed by my colleague, Dr. J. M. Baldy, came to operation on account of adnexal disease. In both the uterus was fibrous (small interstitral fibroids), but the nodules which we thought we felt two years before had disappeared. The personal equation comes in here. We may have been mistaken. What we thought were fibroid nodules may have been enlarged ovaries or thickened tubes.

I have had two cases of large sub-mucous fibroids with uterine cavities measuring about six inches, in which the mammary gland failed to control the profuse hemorrhage. This, however, was to be expected.

2. In subinvolution following miscarriage or labor, mammary gland feeding controls the bleeding and rapidly restores the uterus to its normal size.

3. In menorrhagia due to congestion or relaxation, I have had very satisfactory results. I have not found the treatment applicable in cases complicated by exudate or structural disease of the ovaries or tubes.

4. In the vomiting of pregnancy, it has in three cases given almost immediate relief, when all other measures failed.

In one case, when the treatment was stopped, the vomiting returned, and could be controlled only by returning to the drug.

In conclusion, I would say that I have entirely abandoned the use of ergot in the class of cases outlined above, and I believe that the obstetri-

cian would find mammary gland substance more valuable than ergot at the termination of labor.

Hoping to hear from you again, I am,

Very truly yours,

JOHN B. SHOBER.

Dr. Pryor states:

My experience with mammary extract is as follows: Where the tumors are sub-mucous, intramural, or even sub-peritoneal, yet distinctly sessile, I find the mammary extract of distinct advantage in causing a reduction of the tumor mass, no matter how large it may be; provided, the growth does not spring from the region of the cervix, is not retro-peritoneal and is not intra-ligamentous. I have also found that pedunculate fibroids are not influenced by the extract. The medical treatment has its happiest effect when preceded by curettage. We are having prepared here a preparation of thyroid extract which is still more efficacious, and which has not the disagreeable influence upon the bowels and heart which the old thyroid had. Not the least attractive feature about this medical treatment of fibroid tumors is that it may succeed in reducing the mass from a size demanding laparotomy to one admitting of the vaginal operation.

Yours very sincerely, etc.

April 9, 1902.

In conclusion, then, we have in mammary feeding an agent of proven worth, in the medicinal handling of uterine fibroids. The nearer the type of tumor approaches the pure myoma, the better the results of the growth; the nearer the tumor assumes the fibromyomatous form, the more beneficial the gland has been in controlling the metrorrhagia. It has been proven of positive value in a few cases of the vomiting of pregnancy; also of marked worth in the subinvolution following confinement, and in all these types of cases it has been practically innocuous. We have dealt with the history of the medicinal use of the various organs, called the racemose group of glands, their chemical and physiological findings, and have thereby derived a comparative idea of the various agents that go to make up the new therapeutics of the day—orotherapy—and on retiring from the subject do so with the feeling that they are brilliant, but mysterious; beneficial, but empirical, and despite their cloak of seeming impenetrable chemical reserve, available and necessary in the medicinal armamentarium of the day.

DISCUSSION.

DR. J. H. REUSS, Cuero: The paper we have just heard is a very interesting one, and shows signs of very careful preparation. My personal experiences with these products has been limited, but I think the doctor has shown that there is a place for the use of the mammary glands in all uterine disturbances. They will in time probably take the place of the present forms of relief, which, as a rule, are radical, serious and more or less dangerous. I have used the mammary gland with invariable success as a means of stopping vomiting in pregnancy.

DR. WEST: I would like very much that the doctor might be allowed just to whisper the name of the manufacturer of the preparation to which he has just referred. (Laughter.)

DR. CROUSE: I would suggest that the doctor be allowed to mention it right out in meeting.

DR. WEST: I would like to know where I can get some.

SEVERAL MEMBERS: So should I.

DR. S. E. MILLIKEN, Dallas: I do not think it is just to allow such a paper to pass without at least a word of approbation. Personally, I have had very little experience with these extracts, but I am much impressed by the reports quoted by the author, and I would be very glad to know where we can get a reliable article of the kind described. We have for some time had altogether too much radicalism in the treatment of these uterine disturbances, and now we are going back to a just conservatism.

DR. IRA P. CHASE, Fort Worth: I also have been much interested in the paper. I rise not for the purpose of discussing it, but in order to put a question. There is one reason why the medical profession have been very sceptical regarding the extract from the mammary gland, and, indeed, the gland itself. We know that the secretion from the suprarenal gland has no means of escaping so that we can collect it; but in the mammary gland we have a common article of food known as milk. Would it not have the same properties as the lacteal fluid? This, it seems to me, is one reason why it has not received greater acceptance. Why should it be so much more valuable than a large quantity of the physiological product?

DR. W. S. CARTER: I have had no experience at all in the use of the mammary gland, and cannot speak on that point at all; but I should like to say a word about the action of these ductless glands. The question has been discussed whether they act by means of their own cells or by producing some substance. It appears to me that the fact that we are getting extracts from these glands which will perform all the functions of the glands shows that there is some chemical product—some product of glandular activity. This is strikingly exemplified in the case of adrenalin,

the active principle of the suprarenal gland. Another point is in regard to the physiological action of the thyroid extract. I did not hear any reference to its action on nitrogenous metabolism, and yet that is one of its most important features. The thyroid extract, it may be mentioned in passing, does not act so much on the muscular tissue as on the nerves. The author of the paper has not said anything as to the action of the adrenal gland on the muscles. This can be demonstrated clinically, and probably accounts for the beneficial action it has in the case of Addison's disease. It is very easy to think we see abnormalities in the glands, but it is not so easy to determine between the normal and the abnormal. I used to think that there was a relation between the thyroid, the thymus and the pituitary glands, but the more I study the subject the more I am convinced that they are not connected. There is no real reciprocal action between them. The doctor has not said much about the salivary glands. They have been excised without any effect whatever, and the assumption is that the effect of their action is probably due to the nuclein. External and internal secretions are entirely different. You can excise the pancreas without producing diabetes. Whatever the internal secretion is we do not know, but it seems to be passed to the lymph and not to the blood.

DR. H. A. WEST: I have had no experience in the use of the mammary gland, but I have used the thyroid gland in the treatment of myxedema apparently with good results. The case is still under observation, but the immediate effects were simply wonderful. I do not venture to state who made the extract, but it is referred to in the article on "Myxedema" in the *American System of Medicine*. I have been giving it in five grain doses, and the improvement has been continuous and progressive.

DR. MOORE: I also have had some experience of a favorable character with the thyroid extract. I have used it instead of digitalis in cases where there was failure of compensation in the heart. I have found as a result that it steadied and slowed down the heart, and that the compensation was restored. In one case I saw a child absolutely passive. You could pinch it without producing any sign that it felt the sensation. After three weeks' use of this extract the child would smile when called by name and laugh when any tune was played, and take a general interest in things going on around it. I am glad to see that men all over the country are taking up the study of these extracts.

DR. T. J. BELL, Tyler: I believe that these extracts are coming to the front, and that the profession will no longer turn up their noses and sneer at those who use them. I have used the testicular extract and other preparations in the treatment of arthritis deformans, and with excellent results.

DR. CROUSE, replying on the discussion: I simply desire to say that the observations I have made upon this subject have been very minute,

and with the aid of Dr. Howard, of New York, I think I have succeeded in collecting all the literature that has been published. I would like all the members of the Association to make a trial of these glands, and then say whether or not they believed in organotherapy. There are a great many things in medicine that are empirical. You find many drugs that theoretically should do a certain thing, but clinically do not. We all use many things that we do not fully understand, but in regard to those extracts we are getting to know more about them every day. As to mentioning the name of a manufacturer, I think it is quite right that it should be done in certain cases. When a man who has been experimenting along a particular line does mention a particular brand or make, it usually means that he has been through the whole gamut, and that he has finally selected the one from which he gets the best results. In my case I have used the products of Armour & Co., giving five grain doses of the desiccated preparation. Some of the best men in the profession have not been keeping abreast of the times simply because they have insisted on ignoring the use of these extracts, the physiological action of which is admittedly not yet fully known, but the clinical results of which have been demonstrated by many observers.

DYSMENORRHEA.

M. M. POOL, M. D.,
EL CAMPO, TEXAS.

On being requested by the Chairman of the Gynecological Section of this Association to prepare a paper for this occasion, the first thought presenting itself to my mind was, what can a man in my obscure position and with my limited opportunities and acquirements present that will be useful, instructive, or entertaining; for unless a paper could fill at least one of these requirements, there would be no valid cause for its production.

That it may fail in every one of these directions is extremely likely, but the subject should be so chosen that success might be possible if it were properly handled. To attempt to instruct members of this Association in matters pertaining to gynecology is the province of a man of learning, ability and opportunity. To be entertaining to such men as are before me calls for qualifications in an essayist such as all men do not possess. And if it were not for a desire to learn something from you upon this subject I could not have the courage to ask your indulgence the few minutes allotted me for the reading of this paper.

Perhaps there is no subject in the whole range of diseases of women of more interest to the general practitioner than that type of menstrual disorder designated dysmenorrhea. And in this paper I make no pretentions to discuss all the conditions bearing causative relations to this subject, such as, anemia, chlorosis, gout, rheumatism, syphilis, malaria, metritis, fibroids, polypi, stenosis, anteflexion, retroflexion, spastic contraction of circular fibres forming the internal os, appendicitis, genital spot in the nose, atrophy of uterus and ovaries, etc., with which you are all conversant; but to briefly call your attention to the pathological endometrium so constantly present. For the most important inflammatory condition leading to dysmenorrhea is corporeal endometritis, usually acquired as a result of malposition.

Dysmenorrhea, as you all well know, is not a disease, and should be eliminated as such from gynecological nomenclature, and it must be borne in mind that it is always a symptom of some pathological condition which utterly precludes the possibility of routine treatment. Indeed, any attempt to treat all cases alike is the merest charlatanism, as several varieties may be found in the same patient.

That menstrual pain be rightly construed, the physiology of menstruation, a thorough knowledge of pelvic pathology, and a broad, careful habit of study and thorough case taking are necessary, for it has been demonstrated that from fifty to seventy per cent. of so-called well women suffer more or less pain at time of menstruation.

Normal menstruation is painless, and the normal endometrium is rich in lymphoid elements, for one of the requirements on the part of the woman for conception is engorgement of the rectiform tissue by lymphoid elements; but when a pathological endometrium, the prime cause of the pain, supervenes as a result of the long neglect of one or more of the causes enumerated, it becomes hypertrophied or atrophied, and the blood being sparsely mixed with lymphoid cells coagulates readily, thus as it were, adding fuel to the flames.

The question of vaginal examinations or mechanical treatment for young unmarried women has been objected to by many able gynecologists, who consider it best to avoid directing a girl's attention to her uterus. But evidently she knows when she presents herself for treatment that there is "something wrong with her womb," and would willingly submit to an examination if only suggested by the physician; hence, I think the doctor fails in his whole duty when he neglects an opportunity of gaining information so necessary to a satisfactory diagnosis, and, if the case required it, I would advise that examination be made under chloroform, bearing in mind that the spasmodic, neuralgic and ovarian varieties can exist aside from any lesion of the uterus or appendages, whether congenital or acquired.

Dilatation and stem pessaries give only temporary relief and are unscientific and unsatisfactory, as the obstruction theory has been

disproven by eminent authority, nevertheless, facts and not the personality of the man bringing them forward are wanted, as more harm has been done by the blind following of authority in medicine than can be computed.

Most girls with dysmenorrhea are constipated and anemic; these conditions should have proper attention, and everything possible should be done to improve the general health, build up the patient, and establish equilibrium of the nervous system.

Treatment has long been directed to the relief of pain, and not to the diseased condition, by the use of analgesics; and to relieve uterine congestion and inflammation a host of emmenagogues have been used with varying success. Of the drugs used internally for the uterine congestion and inflammation, I am particularly in favor of apiol, ergoapiol, uterine sedative and liquor sedans, and after trying either of them during two or three periods without good results, I would lay aside all objections to vaginal examination and learn the prime cause, and almost invariably a curettement and some mechanical support for malposition will be indicated, for, as previously stated, a pathological endometrium is nearly always present.

In those cases in which the pain precedes the flow a glycerine tampon gives relief by temporarily removing the congestion.

Beginning a week or ten days after menstruation the application of mild antiseptics and astringents to the inflamed endometrium is a perfectly proper procedure, but care must be exercised that with the applications pyogenic coci are not introduced. Iodine is the preferable drug for this purpose, after which use antiseptic irrigation and pack with iodoform gauze; repeat this treatment every third day for two or three weeks, and if the desired results are not accomplished, I would most assuredly do a curettement, observing the well-known technique and after-treatment; and to produce involution I would suggest ergot, digitalis and quinine every four hours, or "uterine sedative," "liquor sedans" or "ergoapiol" three times a day.

I know the curette does not command the high esteem it did a few years ago as a life-saving instrument, but its use should not be

condemned because abused, and I am glad to know there is a reaction towards conservatism in its use, as it has been truly said "curettement is at present in that period of abuse through which it seems inevitable that every useful operation must pass."

If anything I have said suggests an agreement or a disagreement, I ask for a candid discussion, not only from the specialist to whom we are ever glad to turn to in time of great responsibility, but from the general practitioner like myself.

CONSERVATIVE TREATMENT OF UTERINE DISPLACEMENT.

J. M. INGE, M. D.,
DENTON, TEXAS.

It is not my purpose to oppose operative means for the relief of retrodisplacements of the uterus. But the tendency of the profession in many communities is to submit most all cases presented for treatment to the surgeon for operative interference, such as ventral suspension, ventral fixation or the Alexander operation. Cases that could be in a great measure relieved by a more conservative method, without the risk of the more radical operation, to say nothing of the total failure of a marked per cent. of the cases operated upon.

While hundreds of women are today enjoying good health as a result of a cutting operation, we find a conflict of opinion as to the merits and demerits of each operation among those high in authority. As an illustration, Dr. John B. Deavor tells us: "I cannot but wonder why gynecologists do such an abominable operation as ventral suspension, and that the operation of ventral suspension and ventral fixation is out of place in the majority of cases. I have seen many cases," he says, "operated upon and never failed to find six months afterwards the uterus down in the hollow of the sacrum."

On the other hand, Dr. Baldy says: "Of the Alexander operation, it is irrational and dangerous, weakens the points in the abdominal walls, which are already its weakest points, has been the cause of innumerable hernias, and in these cases leaves the patient in a worse condition than before the operation."

It is hardly necessary to say that the operation advocated by each authority is severely criticised by advocates of another method. Furthermore, that each one has his pet operation and, while it is true that the failure is often due to want of proper technique, statistics show a good per cent. unimproved among the number result-

ing in absolute cure. As shown in Wood's report of 212 cases of ventral suspension, with 129 cured, 53 improved and 30 unimproved; but it is not my purpose to discuss the merits or demerits of the various operations, even if I were ever so competent. However, I will give as my opinion, that I believe there are a large number of such cases, especially with complications, that should be dealt with by the knife, and through no other method could we hope to obtain relief. But coming more directly to my subject, I am persuaded there are many cases of retroflection and retroversion who are invalids one-third or one-half the time who can be restored to comparatively good health by the methods of Brandt—that is, massage, by combined manipulation with the hands, practiced almost daily for a period of time sufficient to give results, and who are submitted to the cutting operation instead. I fully realize there are many cases, with complications, such as tubal and ovarian inflammations, especially suppurative conditions, with adhesions, that the manipulative treatment is not only not applicable to, but would be positively hazardous.

There are many cases of long standing with more or less of adhesions without tubal or ovarian complications. Such adhesions can often be loosened by proper manipulation without risk to the patient. Many years ago, Brandt's massage treatment for retrodisplacements gave him a reputation limited only by the borders of civilization for the relief he gave womankind. From reports we obtained through the journals from American gynecologists, who called upon him, we were informed that his methods could not be explained. He must be seen to be appreciated. No other living man could have such results, or could learn to accomplish what Brandt did with his methods. Such statements I was ever loath to believe. His method was to elevate the hips well, about forty-five degrees, with the body in a straight line, to allow the intestines to gravitate well out of the pelvic cavity, then with the hips on pillows, with one hand externally above the fundus uteri, buried down to or near the sacrum and the other with two fingers behind the cervix to lift the fundus upward, while the hand externally pressed the fundus well forward to the symphasis pubes with finally

the fingers in the vagina in front of the cervix, pressing it upward and backward, being cautious to produce only slight pain. With this massage treatment practiced every day—fifteen to twenty minutes every day—for a sufficient period of time, supported after each treatment with a lamb's wool tampon and best accompanied by hot vaginal douches at night. In many cases the symptoms disappear. The complications that go with retrodisplacements of course must be treated. Long standing cases are accompanied by endometritis, which is treated by the usual method of dilatation, intra-uterine applications, and when necessary curettage and gauze packing.

But, while the treatment given is found in the text-books in the main, many, especially younger practitioners, and those in rural districts who ride over large scopes of country and who are competent men, become discouraged with the above methods when they fail, only besause they have not and do not devote the time and patience required for success. Illustrative that good may result from the conservative treatment, I submit the following report:

About six years ago I was called to a lady, about thirty-five years of age, married about twenty years; mother of two children, younger about seven years of age. Retroversion, fundus pressing upon rectal wall, causing troublesome constant constipation. A tumefaction to the left and in the cul-de-sac proved to be prolapsed left ovary. No history or symptoms of tubal complications or pelvic inflammation. Slight adhesion from long pressure. Her trouble dated from a fall from a horse, about two years before her marriage. Menstruation slightly painful and excessive. Had been treated by various physicians and a number of supports in the form of pessaries had been used to no purpose. The usual backache, dragging symptoms in the pelvis and aching down the thighs, as complicate such cases, were with her and kept her in bed a good portion of the time for many years. By almost daily treatment for several weeks, as above given, and using no support except lamb's wool tampons, at each seance she gradually improved. The womb reduced in size from a state of subinvolution; the slight inflammatory conditions subsided. By adding to the treatment dilata-

tion and a treatment for the chronic endometritis, as she improved, I lengthened the period of time between the massage treatment, until a treatment given only in one or two weeks kept her comfortable. After several months I found it necessary to replace the womb and use massage every two or three months until symptoms entirely disappeared. She is now in comparatively good health. The uterus does not remain in its absolute normal condition, but the symptoms that kept her a half invalid have disappeared, and she is able to do not only housekeeping, including cooking, but to render as much service as is customary for a farmer's wife. She has been advised several times to submit to an operation to fix and retain the uterus forward.

I have in mind and notes for the report of at least a dozen cases discharged within the past few months. But they are similar and the results are much as the one given, and I decline to take your time.

The question is, should these cases have been given the ventral suspension or Alexander operation? I think not. While the womb is placed in its normal position at each seance, it does not remain so except when held so by substantial support, only in exceptional cases. But the extreme retroversion and retroflection are overcome. The surrounding slight chronic inflammation disappears. The symptoms disappear and the patient is practically cured. I instruct patients to assume the knee-chest position two or three times a day. The malposition of the uterus in such cases would cause but slight trouble were it not for complications. "The importance of retroversion and retroflection in producing disability and disease is not considered so great as in former years." Dr. Schroeder gives important statistics of 411 cases examined. Of these 117, or 28.71 per cent., had retroversion or retroflection. As Dr. Davis says, the interesting question is, in how many of these cases did the condition of retroversion and retroflection cause suffering? Of the 411, 303 had no symptoms referred to the pelvic regions, and among these there were 79 cases of retroversion and retroflection of the uterus, or 26.7 per cent. The remaining 108 patients complained of pelvic disorders, and among these 39, or 36.11 per cent., had

retroversion or retroflection of the uterus. I quote from Dr. Davis's article in commenting on the statistics of Dr. Schroeder, which is in accordance with my own limited experience:

"That retroversion and retroflection of the uterus, uncomplicated by disease of the tubes and ovaries, does not materially influence the health of the patient and does not in itself demand treatment; but that there must be no interference with the mobility of the abdominal and pelvic viscera if the patient is to remain in a condition of comfort, and hence the ordinary corset must be discarded and the clothing especially adapted to each case."

THE RELATION THE UTERUS BEARS TO THE MIND.

J. C. CARLTON, M. D.,
BONHAM, TEXAS.

In dealing with this subject every general practitioner is directly interested. Every specialist, no matter what specialty he is practicing, is also interested, in that not a single one escapes the appalling appeals of such patients. Every woman suffers more or less, and some almost constantly, from some functional derangement of the organic structures of the body. We are frequently consulted by those who, although suffering from no gross pathological lesion, nevertheless, require our aid, for the great discomfort, both physical and mental, which these various functional disturbances entail, and we should make every effort to afford them relief. Many of these simple deviations from the normal are really precursers of conditions of the most serious nature. There is every reason to investigate these minor ailments because of their great frequency and important bearing upon our success as practitioners. No scientific physician is pleased when he finds he has lost some of his patients because they have become discontented and annoyed at his lack of interest and sympathy for their minor functional disturbances and that an arrant imposter has them in charge, because by his tact and knowledge of human nature he has readily relieved their imaginary or their apparently trifling ailments. Old ladies and lay persons generally are often loud in their praise of these irregular practitioners simply because they have given attention to these minor difficulties.

Among the more important of such lesser derangements are the reflex neuroses, which will be considered from the standpoint of the general practitioner or gynecologist. There are many who seem to consider them insignificant, and some even appear to doubt their actual existence. The reflex neuroses are, of course, symptoms, and yet are more than simple symptoms, as they are frequently pro-

ductive of more distress than the organic disease from which they take their origin. Neuroses is a generic term for a condition of the hyperasthesia or disturbance of the nervous system which simulates disease in a healthy organ, or an apparently healthy organ, or without evident lesions of any of its parts. Take the uterus, which gets its nerve supply from two main sources, namely, first, the third and fourth branches of the sacral nerve, which is of the greater importance; and, second, from the inferior hypogastric and ovarian plexuses. If the reflex is from the ovarian plexus alone you find that the mind is never disturbed, or if from the inferior hypogastric alone you find a disturbance of the stomach and not of the mind; however, you do find all the reflexes often manifest at the same time. These are only confusing and calculated to mislead the physician. Reflexes that disturb the mind are the most difficult to diagnosticate, for only irritations of the body of the uterus are productive of reflexes to the brain. You will find that where there is some irritation of the third and fourth sacral nerves, whether it be congenital or not, your reflex is invariably a partial or complete loss of consciousness or hystero-epileptic in character. If you have an inflammation of the third and fourth sacral nerves in a young girl you will perhaps have no reflex trouble, only at her menstrual epoch, and not then unless there is some constriction retarding the flow so that pressure is made by the walls of the uterus becoming distended, making pressure on the peripheral irritated nerve; then, in that event, you have a reflex to the brain that will render the patient unconscious, deaf to reason, and nothing more than a lunatic until the pressure is relieved. Again, you find the irritation of such a character that the body of the uterus is very much enlarged, making such pressure on the third and fourth sacral nerves that your patient is illucid for days, and even months, or until she falls into the hands of some one that will give her local treatment and such rest as will reduce the size of the womb so that the pressure on the irritated nerves is relieved, and then, and not until then, it is that your patient is relieved.

There are other conditions that will enlarge the size of the womb that do not give off any reflex, but when such is the case you will

find the nerves in a healthy condition. You will also find the uterus without any hypertrophy whatever, and yet have the nervous reflex; but when such is the case you will find that the growth is of the nerves and will produce the same reflex as if it were in the fibres of the uterus and making pressure on the nerves, and these are the ones which apparently have nothing the matter. Yet you find them going from one doctor to another, resisting any and all treatment offered or suggested, for this one reason. On examination you find a healthy uterus, apparently, find nothing that would indicate disease, neither by appearance or size, yet your patient will insist she has some disturbance and, as you often hear them complain, that they feel as if they were going crazy. These are patients that worry the doctor the most, and usually go from one to another until finally they are convicted of lunacy.

Neuroses of the womb should be studied carefully, both from an anatomical and physiological standpoint. Plainly stated, there is yet much to be learned. The nervous system should be studied by the general practitioner, as well as the specialist; otherwise he is shut out from a true knowledge of disease. That there are many nervous troubles that are reflex no doubt, and one cannot in justice to himself and patient study the nervous reflex too carefully. Do not understand me to say that every woman who is crazy dates her dementia back to a diseased condition of the womb alone, and can be cured by some local treatment; but I do say that if on examination you find some diseased condition of the womb which makes pressure on the third and fourth branches of the sacral nerves you will always find some reflex trouble of the mind, which should have the attention of the physician until relieved.

RETRO-DISPLACEMENTS OF THE UTERUS.

A. L. HATHCOCK, M. D.,
PALESTINE, TEXAS.

My remarks upon this subject will present my views upon the causation, the symptomatology and the treatment of this subject. I shall not endeavor to give a complete enumeration of all the features that usually appear under these heads, but just such of them as have attracted my attention in clinical work, and which, in my estimation, are, therefore, important in forming conclusions.

Among the etiological factors of uterine retro-displacement, I suppose injuries to the pelvic floor should rank among the first, although I am quite sure that other factors are necessary in most or all cases. All of us have seen cases of deep laceration of the pelvic outlet, sometimes extending into the rectum, with a light floating uterus well forward and producing no symptoms referable to the uterus itself. I agree that these cases are not often seen, and are no doubt the exception to the rule, but they prove to us that laceration alone is not sufficient cause in itself to produce retro-displacement. The other factors that aid in the production of displacement are subinvolution, endometritis, too early resumption of household duties after child birth or abortion, straining at stool or vesical tenesmus, and last, but I believe the most important, the lax fibre and lack of muscular tone and energy so often seen in women. This lack of muscular tone is a general condition and involves the muscular system throughout. As a result, there are impaired peristalsis and resulting constipation with straining at stool, indifferent heart action, and feeble vaso-motor tone, favoring congestion and increase in weight of the pelvic organs. Add to this a lax and flabby uterine muscle, whose round ligaments and other supports are relaxed from the same general cause, and it is not difficult to understand how a displacement can readily occur. If, in such a case, the perineum should be torn, a retro-displace-

ment is certain to follow, unless the tear be immediately repaired and especial attention given to the improvement of the woman's general condition. I am decidedly of the opinion that this condition of general muscular relaxation is the primary fault in most uterine retro-displacements in married women, and the idea is strengthened by the not infrequent occurrence of displacements in virgins. My observations have led me to believe that those young women who have displacements, present invariably decided evidence of relaxation, anemia and general lack of vital energy—the very same conditions that bring about spinal curvature and similar disorders.

Of the more important symptoms of retro-displacement, there are hemorrhage either at or between the menstrual epochs, dysmenorrhea, a feeling of weight in the pelvis, leucorrhea, backache, headache, and nervous symptoms of more or less gravity. Constipation is the rule, although Dr. A. Philo Howard, of our city, assures me that he has seen an obstinate diarrhea that has lasted for weeks get well within a couple of days after replacing a retroflexed uterus, and that recurrent attacks had been cured by the same procedure on three separate occasions.

The physical signs of retro-displacement are usually plain and easily made out. Often there is a torn perineum or a relaxed outlet with rectocele, cystocle, or both. The cervix is usually close to the vulva, lying in the axis of the vagina with the os open and frequently lacerated.

The fundus lies anywhere from the sacral promontory to the bottom of Douglas's cul-de-sac and can usually be made out easily by bi-manual palpation. The uterine cavity is increased in depth and the mucous membrane bleeds easily. The sound passes backwards.

TREATMENT.

The first thing to be done when we come to treat any case of retro-displacement is to determine whether or not treatment is necessary. A few retro-displacements present no symptoms, produce no discomfort and require no treatment. Most cases of this kind are discovered accidentally while the physician is making an exam-

ination for some other trouble. Usually when a woman consults her physician, it is because she is suffering and her retro-displacement requires treatment.

The condition of the general muscular system mentioned under the head of "Causation" indicates one important feature of the treatment. Whether the case is operated upon or whether a pessary is worn, she should receive a systematic course of exercise, cold baths, massage and electricity properly administered. Constipation should be relieved, a proper diet list should be insisted upon, and, in fact, a rigid regimen should be maintained for months with the hope of restoring lost tone. The curette is an instrument that is useful in the majority of cases of retro-displacements, its usefulness depending upon whether or not there is an accompanying endometritis, as is usually the case. It does good by removing diseased mucous membrane and also by depleting the engorged uterus and causing vigorous contraction of the uterine muscle. When we come to deal with the retro-displaced uterus itself, the first thing to be done is to determine whether or not the uterus is adherent in its abnormal position. This will be all the more likely if the patient has had an attack of pelvic inflammation. Place the woman in the lithotomy position, pass two fingers deeply into the posterior fornix and gently push the fundus upwards and to the right or left to escape the promontory. If it is not adherent the fundus will be felt to rise before the fingers, and by pressing the fingers of the free hand deeply down into the pelvic inlet, following the curve of the sacrum, the fundus can be turned first upward, then forward, and finally downward over the bladder. Failure is usually due to an adherent fundus, to a fleshy or very nervous patient, or to unusual tenderness which causes involuntary contraction of the abdominal muscles which is incompatible with this method of replacement.

Failing, I prefer to give an anesthetic when the replacement is usually easy by the method stated. Failing still, I should try pulling the uterus down with a tenaculum and pressing the fundus up with a finger in the rectum. The knee-chest position will sometimes lend aid. I would not use a sound in any case unless positive

there were no adhesions present, and that the uterus was very light and firm—a condition rarely found in retro-displacements.

In the great majority of cases in which manual replacement fails no other efforts at replacement should be made until the abdomen has been opened. Occasionally the use of depleting tampons for a few weeks followed by renewed efforts of replacement will succeed.

After replacing the uterus it should be propped up with gauze tampons for a few days and then a properly fitted Smith-Hodge pessary introduced, provided the perineum is not so badly torn that the pessary can secure no support from below, permitting the uterus to descend and push the pessary out in front of it.

The patient should use a cleansing douche daily while she wears the pessary, and the instrument should be removed every three or four weeks, cleansed and replaced.

In nearly all cases the treatment by means of the pessary is in reality but a makeshift, and few women, who experience inconvenience enough to call for treatment, will be satisfied with it. Practically the only cure for retro-displacement of some duration is an operation. Of these a great many varieties have been performed, but I think the only ones to be considered are ventro suspension and the operation for shortening the round ligaments. If the perineum is torn sufficiently to remove the support that it should afford, and if the outlet is very much relaxed, these defects should be remedied before the operation for retaining the uterus in place is done. A torn cervix that is evidently lending its share in producing uterine irritation should be repaired, and these preliminary operations sometimes suffice for a cure. As a rule, however, it is necessary to go further and fix the uterus in its normal position by one of the two operations named.

For women past the climateric, and for those whose ovaries have been removed, ventro suspension is best, because it accomplishes the purpose, is easy of performance, and in these cases there are no unpleasant after effects. For women who are liable to become pregnant, the method of Guillam seems to me the most promising operation. This operation is done by making an incision above the

symphysis and after passing a ligature beneath a round ligament, a forceps is forced through the muscle and peritoneum of one side, the round ligament caught and drawn back with the forceps and stitched there. The same thing is done on the opposite side, the abdominal wound closed, and the operation is finished. Care is taken not to draw too much of the round ligament through, else a feeling of tension is experienced.

The only remark I have to make in regard to ventro suspension is that I like to make the incision a couple of inches above the symphysis and pass the sutures of silk-worm gut through the posterior surface of the fundus first, then through the abdominal wall of first one side then the other from within out, placing them below the abdominal wound, just above the symphysis. They are tied tight over a small roll of gauze to prevent them from cutting the tissues. These stitches are left in three weeks, and, being entirely below the abdominal incision, do not in any way interfere with the complete healing of the wound from which we usually like to remove all stitches at the end of ten days.

Then, to sum up, retro-displacement is due primarily to a weakened state of the muscular system which acts as a very important predisposing cause. As immediate causes, laceration of the perineum and the various acts that increase intra-abdominal pressure and those conditions that increase the weight and plasticity of the uterus.

Practically all cases consulting the physician because of pelvic distress, and who have retro-displacement, should receive treatment by which the uterus is replaced and kept in a normal position, either by tampons and pessaries or by an operation. Replacement should be accomplished by the manual method and never with a sound—this rule may possibly have a few exceptions.

The operative treatment consists in the repair of perineal and cervical defects, followed when needed by abdominal suspension for old women and those whose ovaries have been removed, and intra-abdominal shortening of the round ligament for others.

Finally, all cases should receive proper hygienic treatment directed especially to developing the muscular system and restoring energy and tone to the system as a whole.

GENITAL REFLEXES.

JOHN RODMAN, M. D.,
WAXAHACHIE, TEXAS.

Some years ago I read with consuming interest Dr. Dana's brochure, the "Passing of the Reflexes." I could not accept his conclusions then. I am less in accord with him now.

A reflex in this acceptation is a remote disturbance of a part of the human mechanism that cannot be anatomically demonstrated as directly connected with the provocative excitant.

A carious tooth may cause supraorbital neuralgia, because the nerves implicated are of a common origin. Severe piles or an operation therefor causes retention of urine because the fourth sacral supplies the anal and vesical sphincters.

Pelvic pressure will produce sciatica and muscular cramps in the legs, though the parts supplied may belong to different nerve systems. This is direct response. A reflex is an indirect response. A puzzling sympathy. Addendum, 1.

How many vague inexplicable pains, dispersed, almost at random, over the body have we seen dispelled and thereby explained by the special treatment of the immediate instruments of generation?

Whence clavus, nuchal tenderness, intercostal neuralgia and symptoms congenerous. You will most often see them associated with genital deviations.

A chronic dyspepsia attributable to no ingestive indiscretion or other traceable cause is frequently relieved by rectifying a deranged ovary uterus or an aberrant kidney.

Have you never seen a strongly suspected morbus coxæ demonstrated spurious by a circumcision in male or female or by other preaputio-glandular interference? Is sciatica ever relieved by an operative interference in varicocele, urethral stricture or rectal ulcer or vesicle stone?

Who can, to his complete satisfaction, elucidate puerperal insanity? Tell a layman it is auto-intoxication and he will subside to your great relief.

Who will explain, except by conjecture, the mental derangement of utero-ovarian origin? Yet can you doubt it? Does the ovarine exhibit a surplus of Dr. Wm. Hammond's cerebrine or meduline, or is there a deficiency of anusine?

Does post-operative insanity often follow a herniotomy, a resection of the bowel, a nephrectomy or other capital operation?

Is not conservative ovarian surgery aimed almost directly to the preservation of the mental equilibrium?

Late gynecological surgery has obtained a gain of 35 per cent. in the discharge rate of women from the asylums, operations for hernia have not resulted in a single cure of the mental condition.

In genital neurasthenia the mental element is more conspicuous than in other varieties, and is often the most important part—mental fatigue, wandering attention, blaseness, weak will power, amnesic debility.

Our asylums are crowded today with these genital unfortunates. *Sana mens in sano corpore* ought to be embannered in letters of flame and paraded daily to strains of martial music, and to the gynecologists ought to belong the glad acclaim, *Io Triumphe!*

Gentlemen, I think no conscientious physician could accept the control of an insane asylum without making most direct and earnest efforts to encompass the science of gynecology or strenuously straining to perfection therein, however distant the goal.

Now please don't think that I have *prolapsus mentis,* if you will pardon me, or that I confuse it with *prolapsus uteri.* With regard to my frail form there are both geographical and sexual distinctions. Don't imagine that I consider that every sandbagged man or woman has seminal weakness or a lacerated cervix.

Please accept that I recognize multivarious causes of insanity, and that each cause has protean prerogatives.

Please accept that in my blissful ignorance I often denominate insanity idiopathic, idiopathic! My eternal gratitude to the genius that coined that word. It has no peer in impressing the laity,

solacing our conscience and masking our professional ignorance under a gaudy glamour.

Pain in the mind (again asking your pardon) often originates from pain in the womb and an aberrant mind from an aberrant womb.

Anvia-phobia does not always spring from reading terrorizing literature on lost manhood. Take a man who has not had access to these reprehensible advertisements (his name is Robinson Crusoe, or he lives in Deaf Smith county), let him have frequent nocturnal pollutions with matutinal malaise headache and symptoms congenerous, let him see in his urine daily the milky way of spermato- or prostatorrhœa, let there be slight perineal heaviness, inguinal uneasiness and lumbar pains, he will, without special training, suspect a diminution of virility; he will become hypochondriacal and morbid, is ready to manufacture mountains out of mole hills and is a ready prey and soft-snap for these aborted spermatozoa sharps who advertise as lost manhood restorers.

What mystical physical and psychical laws are operating by unseen force.

Why is hope the paramount microbe or sprite of Pandora's tubercular chest, lifting, cheering, soothing, even brightening, the smile of death?

Why does despair so gloom secondary syphilis in those who know not its loathsomenes and dread not its terrors?

One mind, one body equal one mechanism. Is this sympathy conveyed by blood current or nerve spark? Pray for light, but work however dim the lamp. If the blood current, furnishing the pabulum, either food or fuel to the brain is vitiated by the secretion of any diseased organ, why should not the mind, the tenant of the brain, be endangered as to its integrity, acutely or chronically as is the disease?

It may be that the ancient Greeks were correct in selecting the liver as the seat of the affections and home of the soul, instead of the heart or the mind. We know that valvular disease does not restrict amiability and that an old hepatic cuss is always *persona non grata.*

I am afraid you will think that I imprison or house the soul in the prostate or the semen factory and its reservoir, and that I administer prostatine for religious mania. This fact is indisputable: that in every slight discharge of follicular prostatitis you will always find that mental depression is a feature of the disease out of all proportion to its gravity.

I have seen the clavus-nape tenderness and intercostal neuralgia and epilepsy (probably hysterical) and other reflex phenomena cured by pessary-perineal repair and pessary-shortening round ligaments or suspension-cervical repair, and so on, embracing the adnexa.

I have seen asylum life averted by this same attention to the female and by operation for varicocele and measures addressed to post-urethral adnexa in the male.

Excision of the varicosed dorsal vein of the penis has converted many a misogynist into a gay cavalier, a gynuephobic or woman shunner into a Lothario. The dull, shrinking chrysalis is a gaudy butterfly on parade.

I am stating simply my belief founded on the rock or sand of my experience.

I have avoided opening up the interstices of the subject, but will ask, in closing, why a woman of sound mind with genital disease is operated on with avidity while her insane sister in identical condition is nearly always gynecologically abandoned?

ADDENDUM.

The assertion made by Fliess in 1897 (*Vienna Clinical Weekly*) of a close relation between the nasal mucous membrane and the genital organs in women seems to be corroborated by Schiff, of Venice, who undertook in sceptical spirit the investigation of the subject. Schiff found genital spots on the inferior turbinated and nasal septum. It was found possible to relieve the dysmenorrhœic pains in the loins and abdomen by applying cocaine to the nasal spots and entirely cure by cauterization of the region.

The well known vicarious epistaxis of amenorrhœa proves a relationship between the genital organs and the nose.

Kovlack in amenorrhœa finds onanism of etiologic moment. He maintains that positive signs of onanism were found in painful hypertrophy of the left lobe of the thyroid gland and swelling of certain parts of the nasal mucous membrane. He cauterized the nose in eight cases with five successes.

Suggestion was thoroughly ruled out in these experiments.

SECTION ON OPHTHALMOLOGY, OTOLOGY, RHINOLOGY, AND LARYNGOLOGY.

OPERATIVE TREATMENT OF GLAUCOMA.

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The name glaucoma is a misnomer, since it is suggested by one of the rarest symptoms of the disease, viz.: a greenish appearance of the pupil.

Many attempts have been made to change the name to something more appropriate, but so well established was the name glaucoma before a change was suggested, that all attempts have proved failures, and we are justified in the belief that the disease will continue indefinitely to be known as glaucoma.

The symptom most characteristic of glaucoma is increased intraocular tension. This is sooner or later followed by diminution in acuity of vision, and by the time this symptom is observed the ophthalmoscope will reveal another important symptom—excavation of the optic papilla.

These constitute three important symptoms common to nearly all cases of the disease. Other symptoms will usually be found to characterize the different varieties of the disease.

In no disease of the eye is an early diagnosis more important, as after sufficient progress has taken place to permanently impair the vision, neither medicinal nor operative interference can bring the eye back to its normal condition.

Simple glaucoma is preceded by a prodromal stage, consisting of one or more attacks during which vision is temporarily impaired. These prodromal attacks may extend over a period of from a few weeks to several years, each time the vision clearing up to normal, or almost so.

In acute inflammatory glaucoma we are without the prodromal stage; a fully developed glaucoma is found with the first attack. During an attack of acute inflammatory glaucoma the cornea and the vitrious are more or less cloudy and thus interfere with the ophthalmoscopic examination. But usually other symptoms render the diagnosis possible.

But little difficulty will be found in differentiating the acute and the chronic cases, either in the simple or the inflammatory types.

In the chronic inflammatory type we have a history of slow development of prominent symptoms, gradual lessening of visual acuity. Refractive media may or may not be clear.

In simple chronic glaucoma the prevailing subjective symptom is gradual lessening of visual acuity. The increased tension may be almost or quite imperceptible. The excavation of the papilla may be so slight on first examination as to leave doubt as to whether it is the result of glaucoma, or only simple nerve atrophy. Even a second examination a few weeks later may be necessary to clear up the diagnosis. However, the halo so often found around the papilla is not present in simple atrophy; and again, the narrowing of the visual field while central vision remains good, or comparatively so, is not found in the latter disease.

Difficulty may be encountered in differentiating primary acute glaucoma and hemorrhagic glaucoma, especially where the hemorrhage has been slight and where hemorrhages have not been observed previous to the glaucomatous attack. Also serous iritis might be mistaken for acute glaucoma.

An acute secondary glaucoma due to an intro-ocular tumor might be diagnosed as acute glaucoma. In fact, in dealing with glaucoma many obstacles are met with in the diagnosis. Once the diagnosis is made, treatment demands our whole attention.

Medicinal treatment is no more than palliative, and should not be expected to do more than to ward off a threatened attack, or cut short one already existing. All mydriatics mave a tendency to increase the tension and may serve to bring on an attack when there is the slightest tendency toward glaucoma.

Myotics, especially sulphate of eserine, on the other hand, lessen

the tension, and while its effect is temporary, it is often an important adjunct in combating the disease.

The only curative means yet known to the profession is an operation, the principal one being iridectomy, first performed by von Graefe in 1857. The operation should consist in the removal of not less than one-fifth of the whole iris, and great care should be taken to see that the portion removed extends well back to the ciliary muscle, and the success or failure of the operation will, in many cases, depend upon how well this detail of the operation is carried out. The manner in which the incision is made also plays an important rôle in iridectomy for glaucoma. The incision should be made in the sclera at least one millimeter from what seems to be the corneo-scleral junction in the upper quadrant, the utmost care being taken, of course, not to wound the ciliary body. The benefits derived from an operation of this kind may be two-fold. In the first place, it makes possible the removal of the iris close to the ciliary body, and also gives us a scar in tissue quite different from that of the cornea,—one that will more readily permit of filtration of the intra-ocular fluid. A healthy wound in the cornea will heal within less than one-half the time of a similar wound in the sclera, and when it has healed, the scar tissue will be less porous and permit of but little, if any, filtration from the interior of the eye. If an iridectomy has been performed without the results hoped for, a careful examination may reveal a failure to get that portion of the iris next to the ciliary muscle removed, or the scar may show that the incision was made in the cornea, rather than well into the sclera. If this should be the case, extra care should be taken in a second operation opposite in position to the one just performed.

Simply puncturing the cornea will temporarily lessen the tension, but no permanent benefit has been reported from this operation.

The best results from iridectomy for glaucoma are obtained in the acute inflammatory variety. If properly performed, the prognosis is very favorable. If it be during the first attack, the eye is most likely to be restored permanently to its normal condition.

However, after several attacks have occurred and the vision has failed to regain its normal acuity, the prognosis is not so favorable, yet the operation is none the less indicated. If simple glaucoma is recognized during the prodromal stage, the operator may hope for as favorable results as in the acute inflammatory variety.

It is in simple chronic glaucoma that the operation fails most often to produce a cure. In fact, about all that may confidently be expected is to arrest the disease.

Since von Graefe first performed the iridectomy for glaucoma, many substitutes and many modifications have been offered. But De Wecker's sclerotomy, Hancock's cutting of the ciliary muscle, and more than a dozen other substitutes, all proposed by able men, have either proved failures, or are accompanied with more or less objectionable features.

Jonnesco recently came forward with his excision of the superior cervical sympathetic ganglion. As to the virtues of this operation, no one is yet prepared to say. At present it seems we are justified only in performing the operation when other operative measures have failed. The removal of this ganglion does, we have no doubt, result in reducing the intra-ocular tension in a certain per cent. of cases—and in some have produced what seems to be a permanent cure. And it is to be hoped that more will come of this operation than just at present seems probable.

RADICAL CURE OF TONSILITIS.

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In presenting this paper to you, I do not intend to enter into the etiology, pathology nor give a train of symptoms following acute attacks of tonsilitis; neither shall I enter into the various remedies suggested as to the relief of this acute attack, for one paper could hardly cover all the ground.

The disease is no doubt the most common that we are called upon to treat, and our experiences in treatment are all about the same. I do desire to limit this paper to the radical cure. I mean by radical cure, to completely and permanently cure this trouble without having any further return of the symptoms. A patient is often brought to us giving the usual train of symptoms of having recurrent acute attacks of this trouble, and among the first questions asked, "Doctor, can you cure my child without using a knife, or rather without operation?" To all such questions I quote them what Dr. Lenox Browne, of London, says in his latest work on the nose and throat: "Chronic enlargement of the tonsils is only to be treated satisfactorily by the one method of excision, and there does not appear any valid reason why there should be two opinions on the question." Bosworth says, in his excellent work on diseases of the nose and throat, "I think there can be little question that the prominent indication for treatment in this condition is the removal of the growth." He goes on to give the best means for its complete removal. I could quote various authors, and each one is a unit in stating that nothing short of the complete removal by surgical means will radically cure this trouble. We are often confronted with various questions asking if the voice will suffer, or if the removal of the tonsil will prevent any conception. I remember a father of a little girl asked me very confidentially if the removal of the tonsils would prevent his child from becoming a mother.

All such questions can be answered very positively that nothing but good can come from the complete removal of all the glands that have become degenerated. A normal tonsil is never removed; only those that have become abnormally enlarged. This is the result of repeated acute attacks which render the tonsil completely dead as to their ever having any function. Some of our best vocalists have been compelled to have their enlarged tonsils removed before they could continue to sing. I can recall many cases of singers who have suffered as a result of this trouble, and could only find relief after having a complete removal of these offending glands. Now, the question presents itself: what is the best method of their removal? That depends altogether upon the size and condition of the tonsils. If it can be done it is far better to use a snare of guillotine, completely enveloping the gland, and with one quick motion remove it. If we have a case with adhesions to the pillars of the fauces so that we can not get the instrument to thoroughly envelop the tonsil, so as to enable a complete removal, then it will be necessary to tear away these adhesions. I often use some blunt instrument or with my fingers tear away these adhesions. I then take a long pair of forceps and a curved pair of scissors, dissect away all the diseased gland. I wish to state right here that I never use any forms of paste or cauteries, or in any way attempt to burn away this gland. I really believe that this form of treatment does more harm than good. You notice I have often used the term "complete removal," and by that I mean what the term implies, a complete taking away of every vestige of this diseased gland. If we do not, there will always be a return of the trouble at some future time, and then our reputation will waver somewhat in the eyes of our patients and their friends. The old idea that has been advanced that slicing off part of the tonsil, and then atrophy will take place, thereby completely removing the diseased gland, is, indeed, a very poor teaching. Really, it is far better not to do anything than half way do it. It may be more trouble and probably a little more risk to run to remove every particle at once, but the risk is so small and the result is so overwhelmingly better to do the right way that I strongly advise to not lose sight of our

patients without first seeing that every particle of all the diseased gland is removed. The operation is performed with but very little pain. I never use chloroform or ether, excepting in small children, where there are complications such as adenoids, etc., to be removed. By applying a solution of cocaine to the gland four or five minutes before operating, it is done with practically no pain. I now use in connection with cocaine a solution of adrenalin chloride one to one thousand parts. This I apply over the tonsils, and I find that there is very little bleeding following the operation.

By following out the above plan, we can always say to our patients that they will get well and stay well, for tonsils do not grow back when they are once completely removed.

NOSE BREATHING.

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The nose is not only the essential organ of smell, but of equal importance is its respiratory function. It is the real guardian of the mucous surfaces back and below, as well as to the air passages extending to the alveoli of the lungs.

Roughly taken anatomically, we have the nasal cavity, composed of skin and muscular tissue on the outside, covering numerous parts of different bones; and mucous membrane on the inside, with three turbinate bones to each nostril; with a septum composed of a triangular cartilage in its anterior portion, and a blade of the ethmoid bone and the vomer in its posterior.

Kirk says "the first conditions essential to the sense of smell are a special nerve and nerve terminations in the form of special cells, the changes in whose conditions stimulate a special nerve centre, and are perceived in sensations of odor. The matter of odor must in all cases be dissolved in the mucus of the mucous membrane to render it capable of affecting the olfactory nerve. Therefore, it is essential to the perception of odor that the mucous membrane of the nasal cavity be moist; when the Schneiderian membrane is dry, the sense of smell is impaired or lost.

"In the first stage of catarrh, when the secretion of mucus within the nostrils is lessened, the faculty of perceiving odor is either lost or rendered very imperfect. The sense of smell is derived exclusively from those parts of the nasal faculties where the olfactory nerves are distributed. All parts of the nasal cavity, whether or not they can be the seats of smell, are endowed with sensibility by the nasal branches of the first and second divisions of the fifth nerve. Thus sensations of cold, heat, pain, etc., are perceived. These nerves cannot perform the function of smell, because when the sense of smell is lost, the mucous membrane of

the nose may still remain susceptible with various modifications of sensation and touch."

Zucker Kandel describes the mucous membrane covering the turbinated bodies as consisting of connective tissue, the outer layer covered with flat epithelium, the deep layer forming the periosteum of the turbinated bones. Between them are lymph tissue, lymph glands, the mucus glands. Within the lymphoid tissue there are abundant venous plexuses, which he calls "swell bodies." The venous knots give the tissue the character of erectile tissue. These "swell bodies" are located along the free border of the inferior turbinate, the lower border of the middle turbinate, the posterior end of the superior turbinate, the posterior end of the middle turbinate, and the posterior end of the inferior turbinate bones. Their chief function is to humidify and temper the air, so that its presence in the lower air tract will not excite irritation. During the respiration of moist, warm air, these bodies contract, and throw out less heat and moisture. The inhalation of cold, dry air causes an output of heat and moisture, and a corresponding swelling as a protecting barrier. Ordinarily from fifteen to twenty ounces of serum are thrown out in every twenty-four hours. This is absorbed by the warm and expanded air, and carried to the lower air tract.

The trachea and bronchial tubes are supplied with but few glands, and are dependent on the moisture thrown out in the nose. The interior of the nose is so constructed that the inspired current of air passes over a large, moist surface of mucous membrane. There are about twenty-six square inches of surface thus exposed, and the dust and other foreign particles in the inspired air are deposited and discharged into the naso-pharynx or through the anterior nares. The lower respiratory tract is thus protected from irritation which the dust-laden air would otherwise produce. Germs are also rendered non-pathogenic by the bactericidal properties of the nasal secretion.

From the above considerations it is seen that the respiratory functions of the nose are to humidify and temper the inspired air. The proper performance of this function is of vital importance to the health of the individual. It has been well proven that tran-

sient, but recurrent interior nasal stenosis is attended by rarefaction of the air in the nasal fossa posterior to the obstruction during inspiration. This rarefaction causes hyperemia of the mucosa (especially the erectile tissue) of the nose and nasal pharynx. Chronic hyperemia may ultimately follow and be attended by hyper-nutrition, hence hypertrophy of the parts.

Any growth or formation which may close the superior, the posterior and middle meatuses of the nose, compels the inspired air to traverse the inferior meatus, wherein it is not sufficiently humidified. It passes into the pharynx too dry, and abstracts moisture therefrom, irritation naturally results.

C. A. Parker has conducted a series of experiments to determine the current in nasal respiration, a summary of which is as follows:

During quiet inspiration in a normal nose, the air traverses the middle, superior, and probably the fourth meatus. Inspiration is impaired by:

1. Spurs and deflections of the septum, or enlargements of the inferior turbinated body, if they project forward and upward.
2. Enlargements of the middle turbinate, polypi, etc.
3. Hypertrophies and growths springing from the vault of the naso-pharynx.

In expiration the air traverses chiefly the inferior meatus. Expiration will be more specially affected by hypertrophy of the middle end of the inferior turbinate; hypertrophy causing stenosis of the inferior meatus,—which seems to be borne out from the fact that on inspiration we differentiate odors, the inspired air coming as it does in direct contact with the olfactory bulb, and the expired where the nerves are scarcely in evidence.

As a consequence of the impairment or loss of nasal inspiration, the mouth and pharynx but feebly perform the respiratory functions of the nose, being lined with mucous membrane containing glands, whose functions are but to moisten, not to temper and filter, as are those of the nose.

The mucous membrane of the larynx, trachea, and bronchial tubes are thus irritated, and manifest a catarrhal tendency. The epithelial cells lining the air vesicles—of which there is but a

single layer—become also irritated. The cells at first swell and pile up until the lining is from two to twelve layers deep in places. the cause of this is the diminished amount of oxygen absorbed by the blood. Uric acid, etc., are freely formed, and circulate through the system. There is a retardation in the elimination of carbonic acid gas; in other words, carbon dioxide is accumulated in excess in the blood, and being in excess, acts as a violent poison to the leucocytes, thereby impairing their function. Malnutrition results in physical imperfection,—irritants accumulate in the blood, which in turn cause peevishness, restless nights, and bad temper. This impairment renders the patient an easy prey to microbic infection.

Races of people or individuals who have prominent and narrow noses are more liable to catarrhal affections than those who have wider nasal chambers. The Hebrew race are very frequently afflicted with chronic rhinitis, while negroes are rarely thus affected. Temperate zones predispose to catarrhal conditions, as do also great bodies of water where the atmosphere is subjected to frequent and radical changes in temperature and humidity.

Nasal catarrh occurs more frequently in males than in females on account of their being outside and exposed more. Inhalation of dust-laden air or vapors also predisposes. The most frequent cause of chronic inflammation of the Schneiderian membrane is anterior nasal obstruction, which causes a rarefaction of the air in the nasal chamber posterior to the obstruction. These conditions lead to chronic engorgement or tumefaction of the erectile tissue. The vasa motor control of the erectile tissue is in turn impaired or lost.

Conditions giving rise to anterior nasal obstruction are: flat or indrawn nasal alae, spurs, ridges, and deflections of the septum. One of the first things to be done in connection with any ear trouble is to get the nose in a healthy condition, removing all adenoids, enlarged tonsils, or any nasal obstruction, and alleviating any nasal catarrh that may exist.

Nasal obstruction in the new-born, Leopold Caavean considers, is due mostly to superficial lesions of the nasal orifice, acute coryza in eruptive fevers, pseudo-membraneous coryzas, and those pro-

duced by foreign bodies, syphilis, adenoid growths, retro-pharyngeal abscesses and congenital occlusion.

T. R. Reynolds states that by successful treatment and permanent relief of nasal stenosis, many diseases are prevented, relieved or cured, among which are anemia, marasmus, hay fever, asthma, laryngismus stridulous, gastralgia, cardiac palpitation, migraine, cephalalgia, vertigo, protophobia, and many other conditions often accompanying nasal stenosis.

J. R. Goodale states that he has met with many cases of chronic laryngismus in children, due directly to the result of nasal obstruction.

Dr. Levy, speaking of neurosis in connection with nasal affections, says that he had a case in a woman who complained of dizzy sensations, feeling of anxiety, dyspnoea, sleeplessness, pain in all the parts, and severe abdominal pain,—which after the removal of a polyp in the middle turbinal space, and the reduction of the swelling in the interior turbinate, resulted in complete recovery.

Relative to the effect upon the ear from the different causes of obstruction in the nose, suffice it to say that in the catarrrhal variety, the hearing is adversely affected by cold in the head. Now it is just these cases that require care and discrimination in regard to nasal therapeutics of any kind. In the catarrhal form of ear trouble, we find on inquiry a history of repeated deafness following cold, each exacerbation leaving the hearing permanently worse. There is more or less evidence of nasal and naso-pharyngeal catarrh, while the tympanic membranes are thickened and indrawn and the eustachian tube may be more or less obstructed. Needless to say, the first proposition to consider is the use of proper remedies to benefit the condition of the nose and naso-pharynx as a cause, in addition to treating the condition in the ear as an effect.

C. H. Baker (*Philadelphia Medical Journal,* 1901), after reviewing the anatomy of the middle turbinated bone, says that pathological conditions of this bone often result in reflex sensations, causing asthma, vertigo, etc., and that it ought to be removed whenever it interferes with free drainage from the cavities, whenever it is markedly hypertrophic, pressing hard against the septum,

and in many atrophic cases, where it appears to be the focus of infection; and very often, even if it does not entirely cure, it will greatly moderate the severity of the symptoms.

Lafayette Page, of Indianapolis (*Annals of Rhinology,* August 1901), speaking of diseases of the outer air pasages in relation to mental development, says the two chief conditions within the organism which may retard mental development are: an impure or imperfect blood supply to the growing nerve centres and over-stimulation from abnormal conditions which may exist in any organ of the body. That this would be a favorite region for the lodgment of germs and elaboration of toxines from the pathological conditions, would be obvious to every one who has worked in this region. The respiratory tract in disease is a favorable soil for the development of toxins, as they may be easily absorbed into the circulation owing to the great glandular supply. We can readily understand how defective drainage and pressure in the nasal fossa, causing swelling and stasis in the veins and lymph channels, would affect the brain's functions. It has also been shown that an equally important relation exists between certain venous regions of the nose and the interior of the skull. We sometimes see a rapid toxicity following a slight cauterization of the mucous membrane with the electro-cautery. Frequent enlargement of the glands of the neck, associated with chronic nasal catarrh, indicate a constant toxic absorption from this disease. In the various forms of abnormalities and disease of the nasal fossa, and the often accompanying affections of the digestion, we have all the conditions present which favor septic generation and absorption. Engorgement of the erectile tissues, the various irregularities of the septum, occluding the orifices of the adjacent sinuses, polyp, etc., are the common forms of obstruction, and are often apt to lead to putrefactive changes.

The changes which take place in children whose mental development has been retarded, after securing proper nasal drainage, are so marked that the change in expression may be noticed in a few weeks,—from a dull, despondent air to one of happiness. The constant night terrors and dreams which haunt the sleep of these chil-

dren disappear, and refreshing sleep at once follows the removal of irritation.

J. A. Thomson (*International Clinics,* 1896), speaking of hypertrophied pharyngeal tonsil having a deleterious effect on the general health by stopping up the posterior nasal cavities, preventing nose breathing, and causing the respiratory effort to be made through the mouth, says that there is a constant irritation by the cold, dry, dust-laden air of the larynx, trachea, and bronchial tubes. The history of many of these cases shows that there is barely a recovery from one attack of acute bronchitis before another is set up. Careful examination of the lungs in many cases shows a low degree of development of the bronchial tubes always present.

It is necessary in osmosis that the membrane separating the liquid or gas, through which the change is to be effected, should be moist. In these mouth breathers the air is not properly moistened and warmed in the nose as it should be. The respiratory function of that organ is abolished, and the air enters the alveoli too dry and too cold. The abnormal, dry and congested condition of the alveoli prevents the normal, free interchange between the oxygen of the air and the carbonic gas of the blood. The supply of oxygen in the blood being thus rendered defective, all the chemical changes which make up the complexus of nutrition will be interfered with from lack of the necessary elements. On account of the co-existing dyspepsia, the food in the digestive tract is not properly prepared for absorption. Such as is absorbed has further nutritive changes interfered with on account of the lack of the supply of oxygen.

Kyle states that the shape of the nostrils has much to do with the so-called catarrhal diathesis. Frequently patients will say they have inherited catarrh, when in fact they have inherited the family nose, so shaped that the least congestion of the mucous membrane closes the nose by narrowing the lumen of the nares, and lessening the room in the nasal cavities. Situated as the mucous membrane is in this locality, it can extend in but one direction, and that is toward the lumen of the air passages. The free passage of air and perfect drainage are interfered with, causing an accumulation of

secretion, which by its presence irritates the mucous membrane and produces some form of rhinitis. Too much importance cannot be attached to nasal breathing. Many cases of disease of the nose and throat, causing mouth breathing if continued for any length of time, produce a marked effect on the general health. This is especially true in children, and should be corrected early. If interference is not prompt and effectual, the obstructed nasal breathing with a continuance of enforced snuffling inspiration so often seen in these cases, may cause a drawing down of the facial muscles,—not only changing the child's expression, but often altering the shape of the jaw. The hard palate, instead of forming a perfect dome is moulded into a high arch. The shape of the framework of the bones, especially the floor of the turbinated bones, will determine largely the drainage—whether it go forward or backward.

The changes produced in the blood are well shown in a series of blood counts, which he made in cases in which there was nasal obstruction, the counts being made before and after the removal of the growths. In every case before removal the red blood corpuscles (the oxygen carriers) were reduced to three millions, in some cases as low as one million, five hundred thousand, with the hemoglobin reduced to fifty or sixty per cent. of normal; and in many cases with a slight increase of white corpuscles. After removal of the obstruction, both hemoglobin and corpuscles quickly increased to the normal.

This may seem a paper of quotations—be that as it may. There are so many little points of importance that have been brought out by investigators, that oftentimes it behooves us to avail ourselves of the results of their efforts, in order that we may as concisely as possible, and without a waste of words, make clear to those who are interested in such matters the sense only, reserving the details for those who have more time to read them.

Nine persons out of ten are mouth breathers. These same nine persons will assert to you in all sincerity that they never breathe through their mouths; and even as they talk to you, if you watch them closely, you will note in the majority, after three or four

sentences, a deep unconscious inspiration is taken—particularly in those who are given to talking rapidly. These conditions most frequently prevail in those who have normal nasal appendages, or nearly so. They do not breathe through their nostrils because they particularly wish to, but most often that there may be no hesitancy of speech or break in the conversation, the air passing in greater quantities on inspiration through the mouth, while the stopping to inspire through the nose retards rapidity in conversation, unless one is especially adept. The habitual mouth breather we always recognize at first sight. As we have said before, some condition blocking the nasal passages anteriorly or posteriorly is the cause, giving the appearance of a drawing down of the nasal alae, and a relaxing of the muscles of the lower jaw.

It seems reasonable to believe from the foregoing statements that an individual with no predisposition to tuberculosis from hereditary influence—barring attacks of pneumonia and la grippe, which so often leave the apices of the lungs in such a weakened state as to be unable to resist infection—that this individual might, with a comparative feeling of security, breathe and re-breathe, in a more or less densely laden atmosphere, tubercle bacilli in quantities, provided every respiration were taken through a normal nasal passage. I think in many instances infection takes place, even in such an individual as I have mentioned, by an occasional slip in breathing through the mouth in more or less rapid speech; and yet it would be a difficult task to make this man or woman appreciate that they had breathed in any other way but through the nose. Nasal breathing acts as a preventive to the introduction of these germs into the lungs below. How many people with incipient phthisis really know that as an important aid to their eventual recovery, nose breathing takes first place? How many people with laryngeal tuberculosis would not have held these bacilli at least in the lung tissue if they had only followed this rule, thus relieving nearly all the irritation from the larynx,—we can only conjecture.

True, in many instances patients with more or less involvement of the lung, feel a want of more air than the normal or diseased nasal passage affords. They are thus led—possibly against their

inclination—to mouth breathing in order to supply the increase in quantity felt to be necessary. If they would only stop to consider that this air hunger comes on mostly from overexertion, and the inability to pump into the diseased lung sufficient oxygen to keep the vital machinery going, they would exercise themselves less, and breathe through their noses more, in order that they might eventually increase the exercise without feeling the necessity of drawing upon that other organ, whose principal function is to attend to the needs of the alimentary tract, and not to do his breathing.

If you have not given nose breathing much thought, walk the street any hour of the day, and watch the mouths of the people going to and fro. After awhile, you will be converted to the opinion that nine out of every ten persons are mouth breathers at times, the majority of whom have simply formed the habit for lack of something better to do, having the power to breathe where nature intended them to; but from an absolute lack of knowledge of the importance of this important function, they take in through their mouths in their daily rounds germs of every kind, class and description, which readily find a lodging place in any abraded surface in the mucous membrane from the lips to the alveola of the lungs; whereas had they ever appreciated what it meant, and breathed through their noses, little chance of this infection would ever have presented itself.

Is it any wonder, then, that people are not, as a rule, healthy in the true sense? We recommend gymnastics, calisthenics, exercise in the open air, sun baths, water baths, etc., as imparting to the one who partakes thereof both physical and mental force, which they most need to build up their constitutions; but we overlook the fact that without proper nose breathing, these otherwise essentially good therapeutic agents do but little good in reality. If the blood count and the hemoglobin can be diminished one-half by breathing through the mouth, as Kyle states, and return to normal when nose breathing has been re-established, this fact alone should place the study of systematic nose breathing in all our schools and colleges upon the highest plane, as taking precedence of any one subject

along the lines of hygiene that are taught to pupils in the present day.

We must not overlook the importance of watching our children. The early correction of mouth breathing may make, what would otherwise mar, the career of some now growing to be great man. After the habit of mouth breathing has been firmly established, it is naturally more difficult to control; but when corrected in early childhood, there is little necessity for further consideration through the balance of life.

In conclusion, I merely wish to repeat,—do not forget that the glands of the nasal cavity sift out impurities from the air you breathe, moisten and temper the same to practically the temperature of the mucous surfaces below, thus preventing any shock whatever upon contact, and allowing the entrance of air that is as pure as it is possible to get under given circumstances. Nor overlook that the glands of the mouth and throat have no such function, and that in breathing through the mouth you have violated a law of nature, for which you will eventually pay with ten-fold interest.

SARCOMA OF THE CORNEA.

HENRY REDMOND, M. D.,
CORPUS CHRISTI, TEXAS.

Tumors of the cornea, of whatever nature, are very rare. Their usual seat is the sclero-corneal edge. They gradually increase in size, finally making their way into the cornea. The epithelioma is the most frequently met with, sarcoma next in frequency, and lastly, carcinoma. There are a few cases of fibroma recorded. The history of the case, which I wish to report, is as follows:

Mr. E. D., aged 54, farmer, consulted me June 17, 1897, with reference to his left eye. A few months before he first noticed a small growth in front of his eye, accompanied by impairment of vision. The growth gradually increased, while the sight steadily diminished until his sight was entirely lost. A few months prior to the time he noticed his trouble, he remembers having had an injury to the eye in the form of something entering it while he was cutting corn. The eye at once became painful, so much so that he had to give up his work and apply cold water to it. In a few days, however, he was apparently well. His condition, as I found it at the time of the examination, briefly stated, was as follows: In the center of the cornea of the left eye there was a growth, which covered all the pupillary area and about two millimeters outside of it. It protruded between and a little beyond the lids, as the result of which he could not close them. Attempts to keep them closed gave rise to a great deal of pain in the eye. The surface of the growth was rough, consisting of irregular lobules with a slight mucous discharge covering them. With the exception of the pain which was caused by closing the lids, there was none. To the touch the growth was hard and immovable from its firm corneal attachment. There was no apparent connection with the sclero-corneal edge except a few blood vessels, pannus like, running from the outer portion of the bulbar conjunctiva to the

growth. There was no vision in the eye; perception of light good. I advised immediate removal of the growth. In attempting the removal of a growth of the cornea, one should carefully consider its size, depth of infiltration into the substance of the cornea, condition of the eye, and the health of the patient. If there is still sight, an endeavor to remove the tumor, if possible, without sacrificing the eye, should be made. On the 17th of June, the day he consulted me, I removed the tumor. After first using all necessary precautions, the eye was thoroughly cocainized with a 2 per cent. solution of cocaine. The tumor was seized with a pair of forceps, and an incision was made at its nasal edge. Upon gentle traction it peeled off without any trouble at all, I having to cut the blood vessels with a pair of scissors from the outer portion of the conjunctiva. I judge, from the ease with which it peeled off, that its attachment did not extent far back into the substance of the cornea. The eye was then washed with an antiseptic lotion and cold applications ordered. The eye improved at once, and in a few days it was well. Vision ten days after the operation was six thirty-six for distance, and with plus two sphere, read Jaeger four. There remained a slight opacity in the area of the cornea from which the tumor was removed. Two years after the operation I had occasion to see the case. He stated that he was better. I had not the means to test his sight; however, the nebula was not so apparent. A few weeks ago the patient wrote me a letter stating that he was all right; that he had no trouble with his eye. It is almost five years since the operation, and there has been no sign of any recurrence.

The general appearance of the tumor was very much like an epithelioma. The microscope, however, revealed its true nature. The microscopic study was made by my friend, Dr. Allen J. Smith, pathologist, of the University of Texas. His report is as follows: "The growth itself, while it looks much like an epithelioma, is more like the so-called 'endothelial cancers,' which I regard as a type of sarcoma. In many parts the cells are typically sarcomatous, spindle-shaped, and here and there you will find polynucleated elements. I fancy it has started from endothelial structure."

SECTION ON PATHOLOGY.

CHAIRMAN'S ADDRESS—THE SIGNIFICANCE OF THE TERMS ACUTE AND CHRONIC.

ALLEN J. SMITH, M. D.,
GALVESTON, TEXAS.

It is with the hope of your pardon for refraining from the usual chairman's review of the past year in the work done in pathology that the writer would call your attention upon the present occasion to a matter, of minor importance in many ways, it is true, but one which he feels merits consideration because of the frequency with which the uncertainty of definition of two allied terms of constant use in our nomenclature of disease is brought to mind. In each succeeding year the regularly recurring questions which arise among our students as to the formal application of terms have always brought forward the words *acute* and *chronic* as terms which by no means appear from the context of writings in which they occur or from the definition of lexicographer or lecturer to be invariable and consistent; and one has regularly to point out the evidences of a progressive change in the various applications of the words. In spite of the Bible and Shakespeare, our language is by no means fixed, and while new words are constantly being added, representative of new ideas, many an old term is coming to be burdened with significance it was not intended to convey originally or by authority of our older lexicons. The older definitions of these two words are based upon their etymologic meanings, and clearly indicate the elements of *course* and of *duration* of disease; later there appeared ideas as to the regularity of *symptom presentation* in acute diseases and of irregularity of presentation in cases of chronic duration. Moreover, there was long since added an indefinite correlation of the *degrees of severity* of the symptoms, and

in an irregular fashion one may trace the influence of this phase of thought to the present, one lexicographer embodying the idea in his definitions of the words, another neglecting it for a reason which is easily apprehended, the uncertainty of severity of symptoms in the acute as well as of mildness of symptoms in chronic affections. At present, and for years, there has been a fourth feature gradually appearing, as yet not generally noticed in our dictionaries, but certainly indicated in popular usage of the words—that of a prognostication as to the *outcome* of the disease; and there are few of us who do not realize the feeling of hopelessness which a patient acquires when his affection is termed chronic and the relative hopefulness manifested for complete recovery (if any degree of recovery is possible) when his condition is pronounced an acute one. One cannot help acknowledging the rational basis for this assumed meaning in a large number of affections at least, even though its retention must add to the real confusion which has already arisen more than once, as is natural where one seeks to apply a term of three fold meaning (involving *time, severity* and *regularity of presentation of symptoms*) in a manner meant to convey but one of its phases.

Among lexicographers the following will serve to indicate the uncertainty of definition which obtains in respect to these terms. Quain's dictionary speaks of acute as signifying of a disease that it "runs a more or less rapid course and is generally attended with urgent symptoms," a definition covering the ideas of duration and severity of symptoms, although not entirely above criticism in the declaration that the symptoms are even generally urgent; of course they are often urgent, but very frequently such an adjective can not, with the least propriety, be employed to describe their degree of severity. This work speaks of chronic as "applied to a disease when its progress is slow and its duration prolonged"—a limitation of the more common acceptation, but unassailable as far as it goes. Gould states that the term acute is "used of disease having a rapid and severe onset, progress and termination," with which few are likely to agree even in the main. (For example, who will characterize the typically insidious invasion of such a disease as

typhoid fever as rapid and severe and its termination as meriting the same terms necessarily?) He appears safe, but not inclusive of the characteristically irregular prenomena of a chronic disease course when he defines it as "long-continued; of long duration; slow of progress; opposed to *acute* and to *subacute.*" The Century Dictionary speaks of acute in a pathological sense as "attended with more or less violent symptoms and coming speedily to a crisis" —although a definite crisis as is well known is by no means a constant feature of many essentially acute affections; of chronic as "continuing a long time; inveterate or of long continuance, as a disease; hence, mild as to intensity and slow as to progress."

These three dictionaries may be taken without much hesitation as fair representatives of the position of lexicographers among the English speaking people as far as such terms are concerned; yet one cannot avoid the very real inconsistencies expressed in these selections, and there must arise questions as to the correctness of one or two such expressions, setting aside the difference of limitation in the use of the words as indicated by these authorities. Moreover, while in two of the above quotations there is reference to the matter of outcome of disease, it is for the most part not referred to at all; yet as the writer has suggested, there does such feature really exist, at least in a tacit manner, in our conversation and now and again in our professional writings. What physician, when he employs the term chronic in connection with some particular case, does not realize, if he thinks of it at all, a possible basis for excuse for failure to accomplish a result he might hopefully entertain were the disease one of shorter duration and more regularity in its presentation of symptoms? Whether one will or will not formally declare that, aside from the lexicon definitions mentioned, he will attach to the term chronic in pathology the relatively hopeless outlook for recovery, such a meaning surely obtains in the minds of non-medical persons and in some measure in his own.

When, in the early part of his professional life, the writer entered a term of service as interne in one of the large insane asylums of the East, he was puzzled, and very naturally, too, as to

the basis of classification of the cases in his charge into the acute and chronic forms of insanity. Some cases of so-called acute insanity presented histories of by no means rapid or severe onset; some were decidedly mild so far as the matter of symptom intensity was concerned; and most by no means rapidly approached anything similar to a crisis. Many of the chronic cases were of the most intense type; some gave a history of relatively rapid onset. On inquiry the information was given by the medical officer in charge that an artificial time limit was accepted by him, as well as by others, in separating these two groups—that when a case had progressed without decided evidence of improvement for the period of one year the case was no longer regarded as acute, but set down as chronic. How far among alienists such an absurd limitation prevailed at the time the writer does not know; nor could he then or now accept it with equanimity. The more common definition accepted at the present, one, too, which accords with the suggestions made above, is that a case of insanity may, in a clinical sense, be regarded as in the acute stage as long as no mental deterioration is distinctly apparent along with the usual mental perversions of the disease; and that such a case merits the term chronic when any degree of terminal *dementia* becomes recognizable. (Such differentiation cannot be held, perhaps, except in a clinical sense, since long before the appearance of a terminal *dementia* there may exist in this or that case structural alterations of an essentially irrecoverable type.)

It seems unnecessary to multiply illustrations of such faults in nomenclature arising from the confusion indicated; but the following example is of such real importance that it may well be considered as reason for greater precision. There can be no doubt as to the interpretation placed upon the term chronic by the laity when applied to the forms of renal disease classed in the group of Bright's disease. Without precise explanation at the hands of the diagnostician a sense of hopelessness and irremediability at once seizes upon the unfortunate individual who is the subject; and even though the condition be a relatively tractable one, after the most explicit description and outline of affairs, the patient is apt to

remain dissatisfied and depressed. This same feeling, to the harm of the patient, is likely to be present in the mind of many a physician who has had his ideas moulded by our standard text-books and many a case is given over as relatively unamenable to curative measures to pursue a course tending to actual irremediability, when with a different mental attitude on the part of the physician and constant care, supervision and active treatment there might well have been a different outcome. Not with the least intention to criticise this one book, which is merely an example of many which are, and deservedly so, regarded as standard and authoritative, the text-book on medicine by Osler may be offered in evidence of the point in question. The writer is unwilling to accept the general classification of Bright's disease presented by Osler, and to greater degree the more complicated ones of a number of other authors; but except in a limited way this need not in the present connection be called up. The major error of the text, as it appears to the writer, lies in the fact that the author, in attempting to consider all acute cases of this group under one form and all of chronic duration which involve the parenchyma under another single heading, has forced an artificial separation of the early and late cases of parenchymatous degeneration (with or without inflammatory combinations), and has grouped the early cases of this degenerative condition with the non-degenerative acute form of Bright's disease on the one hand, and the later cases with the more serious, fatty degenerated and contracted cases on the other hand; a confusion unnecessary either clinically or anatomically, and one which must in some measure conduce to the chances for unfavorable result in the management of the case.

There appear to the writer two types of acute Bright's disease, well defined from each other in etiology, semeiology, anatomy and prognosis in perfect examples; and while very frequently in the first few days of the course there is apt to be some confusion of the symptoms, the two types become separated in a short while so that the great majority can, without trouble, be diagnosed. These two forms are the acute nephritis of infectious processes and the acute nephritis arising from non-infectious causes. The former

has as its basis a greater or less degree of cloudy swelling of the cortical epithelium, with which are associated in a variable measure hyperemia (sometimes hemorrhage) and connective tissue multiplication. The second form presents practically only these latter, or purely inflammatory, changes. The first is the "large white kidney," modified more or less in its gross and minute appearances by the hyperemia which at first is apt to be associated (but which may at times be practically absent), and is either a large, pale, flabby organ, or a large mottled (red and white) flabby kidney; while the second is the "large red kidney," a large, deep red organ, more or less tense and without the flabbiness which is characteristic of the first. On section the former usually shows a distinct differentiation of the cortex from the medula, the cortex swollen and pale or mottled, the medula red, and a moderate amount of blood may drip from the cut surface; or the whole organ may be uniformly pale on section, the cortex poorly defined but thick. The latter form over the cut surface is uniformly red, and drips freely with blood, and the swollen condition of the cortex is not present in any marked degree. In the matter of onset the former type always becomes manifest in the course of some infection, usually after the period of acme has proceeded for at least several days, is variable as to the rapidity of its development; while the latter follows some such cause as acute alcoholic excess along with exposure (as where a drunken person lies in his stupor upon the ground, perhaps in the gutter, during a cold night), or excessive doses of such irritants as cantharides, turpentine, the mercurials or similar substances; and for the most part its inception is immediate, developing in the course of a few hours. The large white kidney of the infections, if associated with much inflammatory reaction from the irritant toxines brought to it in the blood, will probably be sufficiently congested to produce at first a suppression of the urine of variable degree, and there may from the same cause be present a hematuria. The urine will be highly albumenous during such stage, and the altered epithelium will readily be detached, appearing free in the urine or attached to the numerous casts; but without such congestion, as is possible, it is not to be expected that

these severe symptoms of suppression and hematuria will prevail, such cases often being unrecognized unless close examination of the urine is had. In the non-infectious type, the typical large red kidney, the element of congestion is an essential feature; and suppression varying with the degree of blood stagnation in the kidneys and a variable hematuria are to be regarded as constant features. From a prognostic standpoint, the large white kidney may, under favorable conditions, pass in the course of a number of days or weeks to recovery; or on the other hand may, in its first few days from uremic poisoning, be fatally terminated. In by no means all the cases in which death does not occur does it promptly return to normal; but after a prolonged presence, varying from months to years, it may pass from the albuminous alteration of its cells to a fatty degeneration, the basic condition of the real chronic parenchymatous nephritis or "fatty and contracted kidney." On the other hand, the large red kidney, the acute non-infectious nephritis, if it should not in the first few days kill from urinary suppression and consequent uremia, is usually quickly and completely repaired; although the writer is satisfied that a single attack may exceptionally be the starting point for a chronic formative process leading to the ordinary "red granular kidney," and that should steps to the recurrence of the acute process be afforded by indiscretions on the part of the patient this possibility becomes the more distinct.

If it be granted that such distinctions warrant the assertion that at least two separable types exist in the description of the text in discussion (and these types are really indicated as varieties of one and the same process in the text-book of Osler), the writer does not hesitate to call attention to the fact, not infrequently verified in clinical study of cases followed in some instances by subsequent autopsy findings, that such parenchymatous degeneration or cloudy swelling of the kidneys, and other organs as well, may continue as such more or less indefinitely for months or even for years (just how many years it is impossible to say, but apparently for two or three at any rate) without showing distinct alteration of the cellular protoplasm into fatty substances. Should such a case, extending over a course within these limits, be placed under conditions

favorable to cellular nutrition, the experience of the writer would indicate that at any stage, judging from the resumption of a normal function, the normal structure of the affected parts may be resumed; although, on the other hand, at any time during the same period, should cellular metabolism be seriously modified or cellular nutrition seriously hampered, the cloudy swelling of the cells may apparently advance to the more serious and irrecoverable condition of fatty degeneration.

As is well known, the fatty degenerated form of nephritis, the "fatty and contracted," or "secondarily contracted," kidney, is a really hopeless form of Bright's disease, as far as hopelessness may be asserted in the absence of an actually moribund state. Yet the text under consideration, as well as others, barely separating them as subdivisions of the same process, associates such terminal conditions in one group with those instances of the cloudy, swollen kidney which happen to have continued for some period beyond the course of the infection from which they originated; and the more serious prognosis, the disposition of a careless physician to give up to what he accepts as inevitable, come to be attached to the latter cases, possibly recoverable, as well as to the former, which may properly be regarded as hopeless. It is in this feature that the writer finds the special application of the terminology above discussed. These types, included by Osler under the general group of chronic parenchymatous nephritis, the writer would urge, should be clearly separated; and to these cases the terms acute and chronic should be applied as indicating in the one variety a relatively hopeful prognosis and in the other the idea of irremediability, apart from the questions of duration of course or the uniformity of symptoms or their severity. He would suggest that a cloudy, swollen kidney should and can fairly be denominated acute Bright's disease whether it has had a duration of two days, two weeks, two months or two years—just as long, in fact, as there is no evidence that the recoverable type of cellular change known as parenchymatous degeneration or cloudy swelling continues without having become complicated or replaced by the serious and essentially terminal degeneration known as fatty degeneration; and

would urge that of the kidneys whose parenchyma is the main seat of change only those be accepted as chronic which present evidence of such fatty change. To the writer's mind there is no question that Osler includes these two types in his description of chronic parenchymatous disease to their confusion; they are specifically referred to as subdivisions under the terms "large white kidney" and "secondarily contracted" or "small white kidney." There is, however, no serious difficulty in clinically differentiating between them, except during the period of transformation of the first into the second, of course a period ordinarily of some duration. A patient having recovered from the post-infectious anemia does not present the cachectic appearance, even though his kidneys are in a state of cloudy swelling, which is characteristic of the terminal degeneration and contraction of the kidneys. The cardiac notes and pulse in the first do not denote the vascular tension apt to be present in the latter; the alimentary and general nutritive disturbances of the first are not likely to be comparable to those of the second. The urine is ordinarily distinctive. The specific gravity, and the content of urea are less disturbed ordinarily in the first than in the latter; the proportion of albumen is not as high; the casts are limited to the hyaline, granular and epithelial types, while in the second there are found oil casts, compound granule cell casts; typically, too, in the latter there are found more broad casts than in the former.

From such presentation it seems clear, then, that in this instance, based merely upon our older conceptions of the terms acute and chronic, there has occurred a separation, in the writer's mind unwarrantable, of cases of one essential disease process into two groups, with the confusion of one of these groups with a very different disease to the formation of the author's *acute Bright's* disease, and with an equal confusion of the more protracted cases of the same essential process with a far more serious and an irremediable type of degenerative affection of the kidneys. It would seem much preferable to accept the idea that the term acute does not necessarily mean any actual period of time in such instances; but that in the interest of a clear recognition of real pathological

conditions all cases of cloudy swelling of these organs should be retained in a single group spoken of as *acute parenchymatous nephritis* because of the possibility of limitation within the life of the patient, and that they should be separated on the one hand from the large red kidney (which may fairly be denominated an *acute formative nephritis*), and on the other hand from the true *chronic degenerative nephritis* or fatty and contracted kidney, to which we know no limitation save in the death of the patient.

Other illustrations of similar confusion and sometimes of absurd application might be cited; but what has been above outlined seems fairly expressive of the objections which may be brought forward. The writer is no lexicographer, and has, moreover, a natural disinclination to be a modifier of forms which time and custom have established or sanctioned; but in this there appears a real need of some modification, which, indeed, has already been accepted tacitly, and only needs formal recognition and application. With such a sense it would seem that some definition as the following might well be assumed for these terms: Acute as applied to a pathological process indicates of such disease that *it runs a fairly regular and limited course, such course being frequently, although not necessarily, attended by severity of symptoms, and the limitation being possibly in recovery.* Chronic may be applied in conditions *presenting no definite duration, more or less irregularity in the presentation of symptoms, a variable severity of symptoms, and ordinarily limited only by the death of the patient.*

MEMBRANOUS STOMATITIS—COMPLICATING PNEUMONIA—EIGHT CASES REPORTED.

J. M. FRAZIER, M. D.,
BELTON, TEXAS.

I desire to submit for the purpose of record in the Transactions of this Association eight cases of membranous stomatitis, occurring in my own practice, coincident with and seriously complicating lobar or croupous pneumonia.

Two of these cases were seen in 1900, two in 1901, and four in February and March of this year. All the patients were adult young women. All were residents of a female boarding school in Belton. The pneumonia was of the croupous or lobar form. In two cases both lungs were involved. They were all typical cases of pneumonia, ushered in with chill with physical signs so marked that an early diagnosis was easy. In every case anorexia, nausea and vomiting were prominent symptoms from the first—and persisting in most of the cases to the crisis.

The temperature in all the cases was high, ranging from 103° to 106°. The pulse rate varied in different cases, in the graver cases being excessively rapid, 130 to 140. The crisis of the pneumonia was marked and uniformly came on the seventh or eighth day.

The membrane began to develop on the third day of the pneumonia. This I noted particularly in the last three cases. Previous to this I had not noticed its appearance, until my attention was called to it at about the time of the crisis. I am now satisfied if I had examined the mouth I would have found it beginning to appear in all the cases earlier. The membrane, when observed early, was first seen on the arch of the palate, on one or both sides of the uvula. Extending by patches and not contiguously to the uvula, cheeks, tongue, roof of the mouth and under the tongue. At it resembled a thin film of spider web lace, or like the lichen

growing on a damp brick wall, of a grayish white color, gradually thickening from day to day and requiring uniformly from five to 8 days to mature and exfoliate.

It was firmly attached, and could with difficulty be removed, and when forcibly detached with forceps left a red, raw and bleeding surface. When matured it was a thick, tough leathery grayish white membrane, loosening at the margin and then easily removed. There was in each case considerable soreness complained of, but not excessive. There was in each case marked pharyngeal catarrh, but no membrane noticed on the back wall of the pharynx. The tongue was swollen. There was but little apparent involvement of the glands. There was difficulty of expectorating and secretions were gotten rid of by gagging and vomiting, or by mechanically wiping them out. There was a distinctly bad odor to the breath in all cases. In two cases this was almost gangrenous. These two cases had decided septic symptoms, persisting a week after the typical pneumonia crisis. Much of the membrane was swallowed and appeared in the discharges from the bowels unchanged.

In four of the cases the urine was examined and found to contain albumen, alkaline in reaction, and specific gravity varying from 1005 to 1015.

The pneumonia in all the cases had the usual symptomatic and supportive treatment, milk forming the staple of food.

The last four cases, occurring this year, had ten to fifteen drop doses of carbonate of creosote every four hours.

Delirium was present in two cases, both cases of double pneumonia with septic symptoms. The mouth was cleansed with cotton swabs, sprays and washes freely and frequently, all sorts of germicidal and antiseptic agents being used. There was never any evidence of contagiousness from patient to nurse or other patient. I regret that I did not attempt to inoculate some of the lower animals with the membrane to determine more positively this point. Three of the cases had, during the second week of their illness, suppuration of one or both ears, preceded by pain and perforation of the drum membrane.

All recovered, the two worst cases requiring a month for conva-

lescence, and both complained of difficulty of co-ordinating muscular movements. One had difficulty of swallowing and a tendency to regurgitate liquids into the nose. No other evidence of even partial paralysis was present.

As to the etiology of these cases, I am unable at present to satisfactorily explain them. I had many other cases of pneumonia at the same time, and several in the same buildings, without the membrane.

The milk, food and water supply was the same, and careful inspection failed to develop any local cause to account for it.

I had Drs. Hudson, Ghent and Embree, of Belton, and Woodson and McCelvy, of Temple, and other physicians see the cases at various times. None of them had previously observed a similar condition or complication. I have been unable to find any published reports of such cases. I believe it is a true parasitic membrane. I have submitted specimens to Dr. Allen J. Smith, pathologist of the Medical Department of the State University. He has taken a kindly interest in the matter, and is making cultures, and I hope will be able to identify the etiological organism.

Believing the cases to be unique and worthy of record, I submit this crude report.

GALVESTON, TEXAS, May 7, 1902.

Dear Dr. Frazier.

I am unable to bring you my report of your bacteria, and at this late hour can only condense the report.

Two germs were recovered from the false membrane submitted to me. One was a bacillus, sometimes occurring in chains, usually isolated. It measures 2½-4 m. in length by a little less than 1 m. in thickness. It is motionless; grows well at body temperature, less well at temperature of the room. Grows well in agar and on blood serum, producing a white, rather dry surface growth. flat, in rounded colonies with slightly fringed edges. No liquefaction of the serum. Does not liquefy gelatine. Stains with the ordinary laboratory aniline; stains not well with Gram's, fairly with Loeffler's blue. Produces a slight turbidity in bouillon, diffuse, with-

out production of gas. Is aerobic. I regard it as a pseudo-diphtheritic bacillus of a somewhat atypical variety. No inoculation in animals done.

The other germ is a diplococcus, not the pneumococcus, but I am unable for lack of time at present to carry it out to determination.

I have been so much occupied with my class and other duties, and working in the other laboratories than the bacteriological during this latter part of the term (and hence not able to keep track easily of the bacteriological cultures), that I have failed to complete this work as I wished. I will as soon as I am free, however, complete the work to your and my satisfaction.

Very sincerely,

ALLEN J. SMITH.

DISCUSSION.

DR. W. KEILLER, Galveston: Dr. Frazier has described very clearly the clinical appearances of diphtheria, and shown the difficulty that often exists in determining between true and pseudo diphtheria. In differentiating the doctor seemed to have tried everything except antitoxin. I think it would be well to try that in every case.

DR. H. C. HADEN, Galveston: In regard to the diplococcus, it may be the diplococcus mucosa of Howard or it may be the pneumococcus. The latter, as you know, is found to vary greatly in its morphologic appearance. The diplococcus mucosa of Howard has morphologically the same appearance, but it differs in its culture. I believe, however, that which the doctor found was the pneumococcus, the diplococcus of Fraenkel. If a culture had been made I feel very certain that the doctor would have also found Klebbs-Loeffler bacillus.

DR. RED: If the pneumonia had not been so prominent I believe the doctor would have made a diagnosis of diphtheria. Ordinarily diphtheria is not difficult to diagnose, and if the attention of the doctor had been directed to the diphtheritic symptoms rather than to those pointing to pneumonia his report would probably have been of a different character. Even in spite of the letter we have just heard read from Dr. Smith, I believe it was a case of diphtheritic pneumonia.

DR. H. A. BARR, Beaumont: I would like to know the age of the children who were exposed to the disease.

DR. FRAZIER: They were all grown young women.

DR. CARTER: We all know how difficult it is to draw the line between the so-called pseudo-diphtheria bacillus and the genuine diphtheria bacillus. I once had an opportunity to make a great many cultures from sore throat while acting as pathologist to the Childrens' Hospital of Philadelphia. It was found practically impossible to distinguish accurately between these two forms either by the morphology or by cultural methods. Inoculation of animals is the only certain way of determining this point in many cases. The close resemblance of the two germs as they are met with clinically is in accord with the experimental facts which show that the so-called pseudo-diphtheria bacillus may be obtained from the true bacillus of diphtheria when the latter develops under unfavorable conditions. In other words, the bacillus diphtheriæ may lose its virulence and at the same time undergo morphologic changes. I cannot but think that if Dr. Smith had known more of the facts of these cases he would have modified his report.

DR. FRAZIER, replying on the discussion: Just a word in regard to what was said by Dr. Red, about my being perhaps misled because the conditions at the beginning were so typical of pneumonia. Now, to my mind there is no doubt whatever that pneumonia was the original cause of the disease, and that the membrane came as a secondary condition to it. I may add that a great many of the symptoms of diphtheria were lacking. Besides there were one hundred and fifty girls in this department, and there was no extension of the disease, although no extraordinary precautions were taken. The patient, in short, was not isolated and there were no efforts to prevent the spread of the disease. Just what the growth was, or why it came on at this particular stage of the disease, I do not know. Whatever it was, it was distinctly marked out, and was in the nature of a stomatitis, not pharyngeal at all. That was a mistake into which Dr. Smith was led.

THE FORAMEN OVALE AND ITS PERSISTENCE IN ADULT HEARTS.

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Demonstrator of Anatomy, University of Texas,
GALVESTON, TEXAS.

As a result of recent reading, and of some slight personal investigation, I have been led to believe that some, at least, of the text-book descriptions of the foramen ovale are, to a certain degree, faulty. Speaking from my own standpoint, I cannot help but recall to mind a certain vague case of heart disease, the first, I believe, I had ever seen; at any rate, the first I ever examined. It was during my second year at college that it fell to the lot of another student and myself to study what turned out to be a seventeen year old "blue baby." The case was exceedingly interesting to us, not only from its purely scientific aspect, but also because the features it presented were so typical and so definitely determined. I can distinctly recall even yet that weakly and somewhat under-developed young woman, with the very evident dyspnœa and cyanosis, and those many heart murmurs that were caused by other lesions that accompanied a patent foramen ovale. Coupled with the fact that her mother and her mother's mother had valvular heart disease, and that rheumatism was a special family legacy, the interest in the case grew until mother and daughter passed out of observation.

According to the mother, the child had always been weakly and unable to play as other children, and ever since birth her skin had been of a somewhat violet discoloration. She was very susceptible to even gentle weather changes. Unlike the usual condition present in these cases, the state of her mentality had always been good. This is a slight glance at the clinical side. What are the anatomical facts connected with the foramen ovale? This inquiry leads us to speak briefly of the development of the heart.

In man, as in other mammals, the early embryonic heart (of about two weeks) consists of two tubes, placed one in each half of the splanchnic mesoderm. By the infolding of the splanchnopleure to form the gut-tract, the two tubes are gradually brought towards each other, until by the absorption of the intervening tissues, a single median longitudinal tube slightly twisted upon itself is formed. During the third week, close observation will discover several obscurely marked divisions in this primitive heart. Of these divisions the truncus arteriosus constitutes the most anterior; the ventricular portion, the middle; while posteriorly is placed the auricular segment. The single tubular heart having grown much in length, this necessitates such a flexion that it assumes the shape of an *S* placed in a somewhat oblique direction. The venous limb of this bent tube is placed caudad and to the left, the arterial headward and to the right. By rotation about a longitudinal axis, the auricular portion comes to lie toward the dorsum of the body, partly behind the ventricular, while the former tends to travel headward and the latter tailward. Further changes result in a further delimination of the various cardiac segments; especially to be mentioned is a constriction just at the beginning of the truncus arteriosus (fretum Halleri) and the formation of the atrio-ventricular (or auricular) canal. But we still have a single-tube heart. The double adult heart results from the growth of several different septa. The interauricular precedes the others, starting in the fourth week from the dorsal and cephalic walls; growing towards the cavity and downwards, it ultimately reaches the septa in the ventricle and auricular canal. Under the lower thickened edge of the interauricular septum there remains for some time a communication between the auricles, a communication styled the foramen ovale. This is an error, however, as the true foramen ovale is produced by a perforation of the primary septum before it has reached the roof of the ventricles. This perforation is very apt to be multiple, resulting in a lattice-like communication between the auricles. The fetal blood-stream causes a noticeable bulging of such a membrane toward the left. As a general rule, these multiple openings coalesce into one large one, the true foramen ovale, closed

later by a second septum which arises in the right auricle to the side of the septum primum.

During the third and fourth months of intra-uterine life, this secondary fold increases in such a way as to cause a partial closure of the foramen ovale; and acting as a sort of valve, it tends to impede the blood-flow into any channel except from the right to the left auricle. The final closure of the foramen is a post-natal event, the pressure of blood from the pulmonary veins causing the valve of the opening to present itself firmly to the free edge. A true union would entirely do away with a foramen ovale, but a more or less incomplete adhesion would leave a patency of greater or less degree. The division of the single ventricle and the formation of the aortic connection with one side and of the pulmonic with the other cannot be considered here for lack of time.

From a study of cardiac embryology, it can readily be inferred that defects in the auricular septum, although the most common, are by no means the only faults that occur. Indeed, interventricular communication, stenosis of the aorta or pulmonary artery, the presence of multiple moderator bands, persistence of the rudimentary heart form, communications between the four cavities, suppression of one side of the heart, entire absence of one or other septa, fetal endocarditis, valvular anomalies, and even a premature closing of the foramen ovale have all been recorded. Some few of these are not, after all, very great abnormalities. In these congenital heart affections, especially where a large foramen ovale exists, cyanosis so often occurs that writers are accustomed to embrace them all under the term "morbus caeruleus," or "blue disease."

To be more exact, cyanosis is present in probably 90 per cent. of the cases. On the other hand, if a slightly patent foramen ovale be the only lesion, neither cyanosis nor other symptom may occur. Indeed, a slit-like aperture (interauricular) is the rule at birth and for two or three months thereafter, and even a long life may be passed with a perceptible foramen, the possessor experiencing no ill results. If I am not mistaken, the prevalent belief among the profession is that the foramen ovale is entirely obliterated just at the time of birth. This is, without doubt, a mistake.

The lividity above referred to may occur immediately after birth, usually within the first week, at least. It may be most evident in such parts as the lips, nose, ears, fingers and toes; or it may be more general. The intensity of blueness varies considerably from a slight dusky tint to purple, or almost black. It may come on only during exertion or excitement, or if already present is almost invariably augmented by these. As a rule, the external temperature is low; cough, dysponea, and great susceptibility to cold are points of note. Aside from a general tendency to under physical development, with lowered bodily tone, the mental condition is also very apt to be below par. Syncope, palpitation, convulsions and cerebral seizures may supervene; while "clubbed fingers," weak, flabby muscles, and a great increase in red cells and specific gravity of the blood are at times prominent features of this or that case. A blowing systolic murmur may or may not be present.

As to the true cause of these interauricular channels and other congenital heart defects, theories are legion. Austin Flint, Hope, and others suggest that it is by no means improbable that after birth some sudden jar or shock might rupture the interauricular septum, or cause an already existing opening to become larger. Or again, ulceration, or a separation of the two layers of the valve might act to produce the same result. As stenosis of the pulmonary valves is at times a concomitant of patent foramen ovale, fetal endocarditis is named as a factor in etiology. Stenosed pulmonic conus or pulmonary artery would cause increase of blood pressure in the right ventricle. Unless this were relieved, as, for example, by an undeveloped or defective ventricular septum, hypertrophy and dilatation of the ventricle is induced; and as a result, overflowing of the right auricle, the stream of blood being directed into the left auricle through the foramen ovale which would persist. Where no valvular lesions accompany the condition, endocarditis can hardly have any very great influence. Occasionally we get a history of rheumatic fever in the mother, or of a general family predisposition to the rheumatic diseases, whatever these may be. Contrarily, no taint of this nature can be decided upon in many cases. As to the time-honored text-book admonition to

place the new-born baby on its right side, many scoffers at this are to be found; while many still cling desperately to the old idea. On which side he is placed probably matters very little, if at all, the present or future welfare of the child. The cause, then, of the anatomical condition is an open question; what can be said along this line of its earliest and most definite symptom, cyanosis?

The hypothesis usually but improperly ascribed to William Hunter is that the admixture of venous and arterial blood is responsible; but this is absolutely disproven, since there are recorded cases of single ventricle and no cyanosis, as well as cases of cyanosis and no admixture of blood currents. Morgagni has advocated the venous congestion hypothesis, and Stillé, in America, has ably defended it. Probably it has more adherents than any of the others; but it cannot be said to explain everything. Stagnation in the venous system, either from a stenosed pulmonic orifice, or from other cause, would, indeed, have some weight in producing deficient oxygenation; diminished lung function, as from atelectasis, etc., would have a similar effect. But of course all of these factors rarely supervene in a single case. Recently Variot has suggested as causative a general circulatory disturbance, probably a vasomotor paresis associated with a lessened blood-cell aeration.

Where there is a serious defect in the auricular septum, or, in other words, where we are dealing with a large foramen ovale, the prognosis is extremely grave; so in cases of marked congenital heart disease in general, associated or not with patent foramen ovale. Death at birth, or a few days after, is the rule. Where there is only a patent foramen, which is larger than usual, cyanosis may present itself, and may be recovered from. Stillé has collected forty cases of so-called "blue disease." This affection, of course, has no definite anatomy, but I mention his results here as not being out of order. Death occurred as follows:

Within twenty-three days after birth	7
Between twenty-three days and ten weeks	3
Between ten weeks and one year	7
Between one year and ten years	10
Between ten years and twenty years	10

Out of these same forty cases, one lived to 29 years, one to 35, and one to 57.

Finally, in what percentage of adult hearts does the foramen ovale persist? In accord with current opinion, text-books nearly all describe it as an abnormality, and most of them give its occurrence to be never more often than one in five. Some weeks ago Dr. Keiller, in looking over some half dozen hearts in another investigation, was struck by the fact that in four or five of the six a definite foramen ovale existed. At his suggestion, I made a study of thirty-one other dissecting room specimens, finding the foramen in sixteen, or in a little over 50 per cent. Since paying a somewhat closer attention to the subject lately, I find that some authorities do describe its presence as being one in three or four. The London Anatomical Society has made an investigation of three hundred and ninety-nine adult hearts, while Fawcett and Blanchford, of Bristol, have examined three hundred and six. Out of this total of seven hundred and five, the foramen was present in 28.36 per cent.; in males, 26.3 per cent.; in females, 31.3 per cent. This relatively more frequent occurrence in females is a dubitable question. During the last few weeks I have been able to include in my list a total of fifty hearts, having added from the dissecting room and post-mortem table to the thirty-one of my first investigation. In toto, I find the foramen ovale in 46 per cent., but I believe this percentage to be a little too high. The aperture was not a mere round opening between the auricles, nor yet a slit. The usual anatomical condition partook of the nature of an oblique channel of some length ($\frac{1}{2}$ to 3 or 4 cm.), with a middle constriction. In some instances, the larger aperture was into the right, in others into the left auricle. Some specimens presented double openings into one or other auricular cavities. In one hundred and fifty-eight of the seven hundred and five cases above cited, in which the size of the foramen was measured, it varied from 1 to 15 mm.; average in seventy-four, 4.6 mm. In my cases the size varied from that admitting a small probe to 15 mm.; average in ten, 4.5 mm. On account of its oblique direction and the valve-like action its walls must exert, the blood-stream can hardly pass from auricle.

to auricle. The following important points, while not in every sense conclusions from this paper, may be cited:

1. A patent foramen ovale probably exists in one case in three.
2. When closed, this usually occurs several months after birth.
3. When only slightly patent, no cardiac embarrassment ensues.
4. The right-sided posture of a new-born child is a matter of little import. I fully realize that this is not a settled question. The conclusion was reached after talking the subject over with several learned practitioners, and after a due consideration that the process of closure is a true physiological process.
5. A persistent foramen ovale is usually present in pronounced types of so-called cyanosis or "blue disease."

Before closing, I wish to state that I have purposely, at the risk of being obscure, omitted to read the statistics of the various specimens in which the foramen ovale was observed, since such a reading would have been only wearisome.

DISCUSSION.

DR. KEILLER: It is most interesting to know that these conditions are found. If you found a foramen ovale like that in an autopsy on a child of six months you would be certain to put it down as the cause of death. There is not nearly enough known as to the time when the foramen ovale closes, and the paper opens up a field of very useful inquiry. Many of the things he told us were eye-openers to me. Of course it is unfortunate that we have so few post-mortems on children, as it is in such cases we would get the most valuable information.

DR. CARTER: The rarity with which we see cases clinically showing symptoms due to this cause, and the remarkable frequency with which the anatomical condition is revealed at autopsies, shows that the condition must frequently exist without causing any untoward symptoms.

SKIAGRAPHY OF THE RENAL VESSELS.

W. KEILLER, M. D.,
GALVESTON, TEXAS.

Two years ago I presented to this Association a paper setting forth the result of dissections I had made of the blood-vessels of the kidneys and showing their relation to the operation of nephrotomy. The paper is to be found in the TRANSACTIONS for 1900, and was published in *American Medicine,* April 6, 1901. About the same time, working entirely independently and by a different method, Max Brödel arrived at similar results. His work was much more exhaustive than mine, his results reached by more perfect methods, and his paper in the *Johns Hopkins Hospital Bulletin* and the *Transactions of the Society of American Anatomists,* December, 1900, is illustrated with drawings which can seldom be equalled, never excelled, for artistic execution and scientific accuracy. The dissections were made, I believe, at the instance of Dr. Howard Kelly, and the operation of nephrotomy formulated by Dr. Kelly on these dissections puts this operation on a sound anatomical basis.

The plates which I present to you today confirm Max Brödel's results by a method which has not so far as I know been applied to the renal vessels, namely, by X-ray pictures of the injected vessels and ureter. They are interesting also as being not the first, but among the first, published pictures of vessels taken by the X-rays, and as giving a very beautiful and very accurate idea of the distribution of these vessels. Briefly, the method consists in the injection of the vessels (the arteries only in most of the specimens), and the ureter with chromate of lead suspended in gelatine, and taking X-ray pictures of the prepared specimen. In one case the arteries were injected with red iodide of mercury in gelatine; the veins with chromate of lead; and the ureter with subnitrate of bismuth.

The results obtained correspond so accurately with my own

description of ureter and vessels, appearing in this society's Transactions, and the much more exhaustively accurate descriptions of Mr. Brödel that I will only give a very brief *résumé*.

With regard to the pelvis the eight kidneys skiagraphed seem to indicate that the bifid pelvis is the commoner type. The upper segment of the pelvis forms in each a long narrow neck and receives two infundibula, of which the upper drains many calyces, the number of which cannot be determined by the method, and the lower infundibulum drains the two upper lateral calyces of Brödel, though they may be rather two lateral groups of calyces than single cups, as Brödel's pictures indicate.

The lower segment of the pelvis has a short wide neck, and ends usually in two infundibula, the upper draining the middle lateral calyces or group of calyces; while the lower drains directly or by minor narrow-necked funnels the lower lateral and terminal median groups of calyces.

My specimens differ from his plan in the narrowness of the pelvis and infundibula and the greater complexity of the calyces. The difference is mainly due to my specimens having been hardened in situ by arterial injection with 2½ per cent. formalin before they were distended with the gelatine mass. In specimens on which I distended the pelvis before hardening the contours corresponded more closely to Brödel's plan. Kelly has pointed out the advantage of distending the pelvis with fluid injected into it by catheterization of the ureter before nephrotomy; and the comparison of my specimens and Brödel's drawings, and of my own specimens injected before and after fixation with formalin, emphasize the importance of the method.

Horizontal sections through the kidneys show in skiagraph the accuracy of Brödel's statement that the calyces of the posterior row point to a line about a centimetre and a half or two centimetres behind the convex border; those of the anterior row pointing nearly to the middle of the anterior surface.

Coming now to study the arteries, in some of the sections even the interlobular arterioles are injected, but in no case have I succeeded in injecting the vasa recta. These could undoubtedly be

easily reached, but these skiagraphs are made from ordinary dissecting-room kidneys, injected with the rest of the body, not from special injections. I hope in a future communication to show special injections which may demonstrate minutiae more successfully. For my purpose I wish only to call your attention to the grosser features. As seen in longitudinal views, the arteries divide dichotomously, and before they reach the hilum there are about six considerable trunks. One of these passes upward to surround the upper group of pyramids, one downward to surround the lower group, and the rest are so disposed that the anterior two-thirds of the kidney substance is supplied by vessels which lie in front of the pelvis and infundibula, while the posterior third is supplied by vessels usually springing from one trunk which lies behind the pelvis and infundibula. There is also a fairly definite line of demarkation between the two sets of vessels along which the posterior row of calyces may be laid open without wounding any large artery. This is a vertical line, one and one-half to two centimetres behind the convex border, the incision running in a plane through the kidney substance nearly parallel with the general plane of its posterior surface.

Certain of the plates show well the arterial arches formed near the line of junction between the cortex and bases of the pyramids, but they show also that these arches are not complete, there being no anastomosis between the vessels which form the two halves of the arch. The fact that there is no anastomoses of these vessels and that the arteries form terminal pencils or tree of the dichotomous type is well described in Quain's Anatomy, but the statement in Piersol's Histology is at least capable of other interpretation. The veins of these arches, on the other hand, anastomose freely, as shown in Brödel's dissections and my skiagraph.

While proper section of the kidney can be practiced without wounding any large artery, it is not so with the veins. The great trunks of the veins are all between the anterior group of arteries and the pelvis, but a great venous anastomosis takes place across the necks of the posterior secondary infundibula, and more than one calyx cannot be opened through a continuous incision without

cutting veins of one to two millimetres diameter. My experiments in trying to follow the indicated line of incision in injected kidneys have also shown that the vessels of the two systems sometimes come so close together that in any extensive exploratory incision there is danger of wounding a considerable artery of one or other systems longitudinally, cutting a slice out of its walls, and such a wound might cause serious hemorrhage.

Such a study of the vessels of the kidneys, while showing why a very full exploratory opening of the infundibula may be safely carried out, emphasizes the necessity of a thorough knowledge of their anatomy. The hopelessness of any attempt to stop the venous hemorrhage during the exploration would indicate the advisability of using a mild clamp on the pedicle during the renal section to limit the loss of blood and keep the field clear.

For the closure of these wounds Kelly advises mattress sutures, but we have not hitherto found such sutures necessary, and they must interfere so seriously with the blood stream to the parts distant to the sutures that it seems to me they should be reserved for cases followed by troublesome hemorrhage, which ordinary deep sutures passing over the convex border cannot control, not made a matter of routine. I am curious to know if Dr. Kelly has ever actually closed his nephrotomy wounds by a preliminary set of fine catgut sutures through the calyces; except, of course, where marked hydronephrosis makes the operation of nephrotomy comparatively simple.

DISCUSSION.

DR. J. E. THOMPSON: I listened to the paper with a great deal of pleasure and interest. I have been interested in this subject for a great many years because of the attention I have given to kidney surgery. I have rarely had any difficulty in removing the kidneys, but I am always apprehensive that I may. In order to control the hemorrhage the first thing is to press the two ends of the wound together. Where that is not possible the kidney can usually be pressed into the lumbar region. As a rule the operation is simple enough, but sometimes I have had serious frights. Some time ago I had to perform a nephrectomy for a tumor of the kidney. I will show the members the specimen, and they will see that I did not dare risking a second hemorrhage. When Dr. Keiller was

making his experiments he called my attention to a fact that may not be generally known, that you cannot get your finger into the kidney pelvis unless it is inflated. It has been a constant source of wonder to me that we have not more hemorrhages in these operations, and we certainly cannot be too much on our guard against them. What the doctor has told us shows the necessity of being more and more careful. We ought to appreciate what a delicate thing the kidney pelvis is. We ought not to be satisfied with what we feel. Henry Morris reports one case in which he could not find the stone even with a needle, but when the organ was removed the stone was found embedded in it. By the aid of the skiagraph we can now approach more nearly to an accurate knowledge of where the stone is, but negative results even by the skiagraph are not to be taken as positive evidence that there is no stone. I have a good X-ray in my laboratory at Galveston, and, while I know that I can rely upon positive results, I am never fully satisfied with those that are negative until other tests have been applied. Too much credit, in my opinion, cannot be given to Dr. Howard Kelly in connection with this matter, for he has taught us more than any one else as to the rationale of the kidney.

DR. KEILLER: I have nothing to add except that I should have liked the doctor to tell us something about Howard Kelly's method of suture in which the matrix plays so important a point. The operation is a very interesting one, but one which, in my opinion, should not be performed except as a last resort.

LIST OF MEMBERS

OF THE

STATE MEDICAL ASSOCIATION OF TEXAS,

OF

AUXILIARY ASSOCIATIONS IN AFFILIATION,

AND OF

OFFICERS SINCE ORGANIZATION.

In Memoriam.

Dr. W. J. Burt, Austin, Texas, died July 10, 1886.
Dr. H. W. Moore, Fort Worth, Texas, died September 26, 1886.
Dr. G. K. McGregor, Waco, Texas, died May 12, 1884.
Dr. J. K. Meek, Ennis, Texas, died November 11, 1886.
Dr. James Haley, Moffat, Texas, died February 20, 1887.
Dr. J. S. Willis, Waco, Texas, died July 6, 1887.
Dr. A. Welch, ————, died September 22, 1886.
Dr. J. T. Howe, Huntsville, Texas, died August 13, 1888.
Dr. Z. W. Baker, Temple, Texas, died December 13, 1888.
Dr. A. C. White, Cuero, Texas, died December ——, 1888.
Dr. F. A. Tompkins, Sandy Point, Texas, died July 26, 1888.
Dr. J. M. Ross, Brenham, Texas, died February 10, 1889.
Dr. Y. D. Harrington, Terrell, Texas, died June 9, 1889.
Dr. H. P. Downman.
Dr. J. L. Felder, Jr., Pittsburg, Texas.
Dr. W. H. Hardison, Fort Worth, Texas.
Dr. W. D. Kelley, Galveston, Texas.
Dr. Ed. Randall, Galveston, Texas, died November 13, 1889.
Dr. A. R. Kilpatrick, Navasota, Texas, died September 10, 1887.
Dr. Ashbel Smith, Cedar Bayou, Texas, died January 21, 1886.
Dr. S. F. Starley, Tyler, Texas, died December 19, 1887.
Dr. J. M. Lewis, Mexia, Texas.
Dr. S. T. Lowry, San Antonio, Texas, died June 30, 1890.
Dr. W. H. Park, Tyler, Texas, died November 4, 1885.
Dr. J. B. Robertson, Goliad, Texas.
Dr. W. L. Rogers, Galveston, Texas, died April ——, 1887.
Dr. R. B. White, Ennis, Texas.
Dr. J. H. Martin, Dallas, Texas, died July 18, 1887.
Dr. E. J. Carothers, San Antonio, Texas.
Dr. A. E. Carothers, San Antonio, Texas.
Dr. G. W. Tucker, Comanche, Texas.
Dr. S. A. Towsey, Galveston, Texas.
Dr. Etien Mellou, Brownsville, Texas.
Dr. W. E. Saunders, Sherman, Texas.

Dr. Hilary Ryan.
Dr. W. A. East, Hallettsville, Texas, died December 5, 1885.
Dr. L. S. Cabell, Charlotteville, Va. [Honorary.]
Dr. Willis Westmoreland, Atlanta, Ga. [Honorary.]
Dr. J. H. T. King, Laredo, Texas.
Dr. S. H. Smith, Dallas, Texas.
Dr. A. A. Terhune, Jefferson, Texas.
Dr. L. J. Graham, Henderson, Texas, died April 15, 1891.
Dr. F. T. Paine, Comanche, Texas, died April 16, 1891.
Dr. G. W. Kerr, Waelder, Texas, died April ——, 1891.
Dr. T. S. Burke, Corpus Christi, Texas, died September 21, 1891.
Dr. W. T. Strain, Wills Point, Texas, died November 1, 1891.
Dr. W. W. Reeves, Austin, Texas, killed December 29, 1891.
Dr. T. M. Stone, Jasper, Texas, died January 18, 1892.
Dr. E. J. Ward, Waxahachie, Texas, died December 17, 1893.
Dr. E. G. Nicholson, Del Rio, Texas, died February 3, 1893.
Dr. M. S. Crow, Stephensville, Texas, died May 3, 1892.
Dr. C. C. Francis, Cleburne, Texas, died November 16, 1892.
Dr. A. W. Pope, Marshall, Texas, died November 3, 1892.
Dr. A. D. Burroughs, Houston, Texas.
Dr. J. E. Roach, Sipe Springs, Texas, died April 10, 1893.
Dr. C. F. Payne, Comanche, Texas, died September 13, 1893.
Dr. J. L. May, Stephensville, Texas.
Dr. M. H. Oliver, Ennis, Texas, died September 5, 1893.
Dr. John L. Wagley, Cleburne, Texas, died December 13, 1893.
Dr. W. H. Waters, Independence, Texas, died June 4, 1894.
Dr. E. L. E. Castleton, Houston, Texas, died September 17, 1893.
Dr. James Crowling, Houston, Texas, died June 23, 1894.
Dr. H. F. Witherspoon, Corsicana, Texas, died September 7, 1894.
Dr. Michael Perl, Houston, Texas, died January 2, 1895.
Dr. Jas. Kennedy, Galveston, Texas, died March 27, 1895.
Dr. George Cupples, San Antonio, Texas, died April 9, 1895.
Dr. C. B. Raines, Mineral Wells, Texas [Honorary], died June 28, 1895.
Dr. W. P. Burts, Fort Worth, Texas, died September 5, 1895.
Dr. G. M. D. Patterson, Franklin, Texas, died July 8, 1895.
Dr. Josephus Cummings, Austin, Texas, died July 13, 1895.
Dr. A. D. Paulus, Flatonia, Texas, date of death not reported.
Dr. J. L. Carter, Dallas, Texas, date of death not reported.
Dr. W. H. Wilkes, Waco, Texas, died August 14, 1896.
Dr. H. H. Darr, Caldwell, Texas, died November 22, 1896.
Dr. B. W. Bristow, Flatonia, Texas, died July 13, 1896.

Dr. J. S. Letcher, Dallas, Texas, died December 2, 1896.
Dr. W. B. Brooks, Dallas, Texas, died October 4, 1896.
Dr. R. S. Gregg, Manor, Texas, died January 22, 1897.
Dr. J. H. Blackburn, Mineral Wells, Texas.
Dr. E. N. Camp, Lewisville, Texas, died March 11, 1898.
Dr. N. B. Kennedy, Hillsboro, Texas.
Dr. R. M. Swearingen, Austin, Texas, died August 7, 1898.
Dr. W. Dupre, Dallas, Texas [Honorary], died November 28, 1898.
Dr. J. F. Noyes, Providence, R. I. [Honorary], date of death not reported.
Dr. David Yandell, Louisville, Ky. [Honorary], died May 3, 1898.
Dr. Thos. G. Heard, Galveston, Texas [Honorary], died March 8, 1899.
Dr. R. T. Knox, Gonzales, Texas, date of death not reported.
Dr. R. Rutherford, Houston, Texas, date of death not reported.
Dr. R. J. Flewellen, Houston, Texas [Honorary], date of death not reported.
Dr. M. D. Knox, Hillsboro, Texas, died August 27, 1899.
Dr. J. M. Litten, Austin, Texas [Honorary], died March 31, 1900.
Dr. J. W. Cruse, Beaumont, Texas.
Dr. A. E. McMahon, Tolar (formerly Marshall), Texas, died June 13, 1900.
Dr. A. H. Schenk, Kenney, Texas, died August 24, 1900.
Dr. A. V. Doak, Taylor, Texas, died September 14, 1900.
Dr. E. P. Becton, Austin, Texas, died January 14, 1901.
Dr. A. N. Denton, Austin, Texas, died March 4, 1901.
Dr. R. H. Chilton, Dallas, Texas, died June 5, 1901.
Dr. J. B. Massie, Houston, Texas, died August 24, 1901.
Dr. W. W. Walker, Schulenburg, Texas, died May 5, 1901.
Dr. J. H. McDaniel, Centerville, Texas, date of death not reported.
Dr. J. D. Fennell, Seguin, Texas, died June 28, 1901.
Dr. J. H. Sears, Waco, Texas, died December 4, 1901.
Dr. C. W. Boggs, Marquez, Texas, died February 19, 1902.
Dr. G. W. Akard, Springtown, Texas, died December 19, 1901.
Dr. J. C. Mayfield, Galveston, Texas, died December 20, 1901.
Dr. Lawrence Ashton, Dallas, Texas, died March 6, 1902.
Dr. T. C. Osborn, died August 19, 1902.

NEW MEMBERS.

Name.	Postoffice.	County.
Allen, G. W., Jr	Flatonia	Fayette.
Appleby, Scott	Terrell	Kaufman.
Baldridge, W. H	Wylie	Collin.
Beddoe, A. F	Dallas	Dallas.
Brown, J. R	Hutto	Williamson.
Burditt, J. B	Bellville	Austin.
Cary, E. H	Dallas	Dallas.
Chapman, P.	Winchester	Fayette.
Collam, S. A	Texarkana	Bowie.
Cook, D. M	Jonah	Williamson.
Corley, Sam	Clarksville	Red River.
Cornick, Boyd	San Angelo	Tom Green.
Crutcher, W. C	Mt. Vernon	Franklin.
Decherd, H. B	Galveston	Galveston.
Douglas, J. G	Itasca	Hill.
Dyer, E. G	Starr	Mills.
Ehlinger, Otto	LaGrange	Fayette.
Florence, J. H	Dallas	Dallas.
Haden, H. C	Galveston	Galveston.
Halley, W. B	Ballinger	Runnels.
Harlen, R. P	Richardson	Dallas.
Harlan, W. J	Roane	Navarro.
Harper, W. A	Austin	Travis.
Herring, J. H	Forney	Kaufman.
Jones, B. F	Breckenridge	Stephens.
Kimble, E. W	Gorman	Eastland.
Kittrell, T. F	Texarkana	Bowie.
Leach, H. F	Aledo	Parker.
McDaniel, Ralph	Granger	Williamson.
Marchman, O. M	Grand Saline	Van Zandt.
Miller, F. P	Midland	Midland.
Miller, T. A	Corsicana	Navarro.
Neely, W. H	Terrell	Kaufman.
Nicholson, R. E	Chapel Hill	Washington.
Nowlin, Bethel	Jonah	Williamson.

Name.	Postoffice.	County.
Pannell, J. A	Martindale	Caldwell.
Patton, W. D	Van Alstyne	Grayson.
Pope, J. G	Coleman	Coleman.
Redmond, Henry	Corpus Christi	Nueces.
Sartor, E. R	Baird	Callahan.
Sessions, I. P	Rockdale	Milam.
Shields, F. B	Victoria	Victoria.
Slater, T. S	Re	Navarro.
Smoot, J. B	Dallas	Dallas.
Taylor, Holman	Marshall	Harrison.
Terry, J. S	Ennis	Ellis.
Van Nuys, J. C	Franklin	Robertson.
Webster, H. R	Texarkana	Bowie.
West, W. F	Waxahachie	Ellis.
White, F. S	Terrell	Kaufman.
Williams, C. B	Mineral Wells	Palo Pinto.
Wilson, J. E	Dallas	Dallas.
Witt, J. M	Bartlett	Williamson.

HONORARY MEMBERS.

Name.	Postoffice.	State.
Crofford, Thos. J.	Memphis	Tennessee.
Douglass, Richard	Nashville	Tennessee.
Harrison, R. H.	Columbus	Colorado.
Jones, R. H.	Wills Point	Texas.
Keller, Jas. M.	Hot Springs	Arkansas.
Larendon, J.	Houston	Texas.
Le Mond, R. F.	Denver	Colorado.
Love, I. N.	New York	New York.
Lydston, Frank G.	Chicago	Illinois.
McMurtry, Louis S.	Louisville	Kentucky.
Madden, Thos. More	55 Merrion Square, Dublin	Ireland.
Prather, W. L.	Austin	Texas.
Price, Joseph	Philadelphia	Pennsylvania.
Reed, R. Harvey	Rock Springs	Wyoming.
Souchon, Edmond	New Orleans	Louisiana.
Stout, S. H.	Dallas	Texas.
Stuart, D. F.	Houston	Texas.
Tate, H. L.	Lindale	Texas.
Thompson, W. G.	73 W. 49th St., New York	New York.
Wallace, D. R.	Waco	Texas.
Wyeth, John A.	New York	New York.
Young, S. O.	Galveston	Texas.

ORDINARY MEMBERS.

Name.	Postoffice.	County.
Adams, W. A	Fort Worth	Tarrant.
Adams, W. J	Robert Lee	Coke.
Alexander, C. M	Coleman	Coleman.
Alexander, R. J	Troy	Bell.
Allen, G. W	Flatonia	Fayette.
Allen, G. W., Jr	Flatonia	Fayette.
Anderson, J. C	Granger	Williamson.
Anderson, W. B	Brownwood	Brown.
Appleby, Scott	Terrell	Kaufman.
Archer, Minnie C	Houston	Harris.
Archer, W. A	Houston	Harris.
Baldridge, W. H	Wylie	Collin.
Baldwin, A. P	Tyler	Smith.
Baldwin, W. S	Paris	Lamar.
Barham, J. H	Nacogdoches	Nacogdoches.
Barnett, T. L	Midlothian	Ellis.
Barnitz, H. D	San Antonio	Bexar.
Barr, H. A	Beaumont	Jefferson.
Baze, R. J	Mason	Mason.
Beaumont, G. B	Coleman	Coleman.
Beckmann, A.	Bartlett	Williamson.
Becton, Joe	Greenville	Hunt.
Beddoe, A. F	Dallas	Dallas.
Beeler, B. R	Mineral Wells	Palo Pinto.
Bell, J. H	San Antonio	Bexar.
Bell, T. J	Tyler	Smith.
Benbrook, J. T	Rockwall	Rockwall.
Bennett, T. J	Austin	Travis.
Blailock, W. R	McGregor	Coryell.
Blair, H. A	San Antonio	Bexar.
Blalock, W. C	Kosse	Limestone.
Bowers, S.	Brenham	Washington.
Boyd, F. D	Fort Worth	Tarrant.
Bradfield, J. Y	Daingerfield	Morris.
Braunnagel, J.	San Antonio	Bexar.

Name.	Postoffice.	County.
Breath, W. P.	Galveston	Galveston.
Brown, H. H.	Yoakum	DeWitt.
Brown, J. R.	Hutto	Williamson.
Brown, W. T.	Wallis	Austin.
Burditt, J. D.	Bellville	Austin.
Buie, J.	Hillsboro	Hill.
Burg, S.	San Antonio	Bexar.
Burroughs, S. R.	Buffalo	Leon.
Burrows, H. A.	New Boston	Bowie.
Bute, J. H.	Houston	Harris.
Calhoun, B. F.	Beaumont	Jefferson.
Campbell, P. L.	Dallas	Dallas.
Campbell, W. R.	Chapel Hill	Washington.
Cantrell, C. E.	Greenville	Hunt.
Carleton, J. C.	Bonham	Fannin.
Carter, J. T.	Walhalla	Fayette.
Carter, W. S.	Galveston	Galveston.
Cary, E. H.	Dallas	Dallas.
Chapman, Harry J.	San Antonio	Bexar.
Chapman, P.	Winchester	Fayette.
Chase, E. D.	Galveston	Galveston.
Chase, Ira C.	Fort Worth	Tarrant.
Chilton, P. H.	Comanche	Comanche.
Clark, I. E.	Schulenburg	Fayette.
Clay, C. L.	Moody	McLennan.
Cline, I. M.	New Orleans	Louisiana.
Coble, J. M.	Dallas	Dallas.
Cochrum, J. V.	Island	Limestone.
Coleman, P. C.	Colorado	Colorado.
Collins, W. B.	Lovelady	Houston.
Collom, S. A.	Texarkana	Bowie.
Comer, C. C.	Carthage	Panola.
Conerly, T. W.	San Angelo	Tom Green.
Cook, D. M.	Jonah	Williamson.
Cooke, H. P.	Galveston	Galveston.
Corley, Sam	Clarksville	Red River.
Cornick, Boyd	San Angelo	Tom Green.
Crouse, H. W.	Victoria	Victoria.
Crump, J. G.	St. Jo	Montague.
Crutcher, W. C.	Mt. Vernon	Franklin.
Cummings, H. W.	Hearne	Robertson.
Daniel, F. E.	Austin	Travis.

Name.	Postoffice.	County.
Dean, J. J	Waco	McLennan.
Decherd, H. B	Galveston	Galveston.
Dodson, I. E	Vernon	Wilbarger.
Dorbandt, J. C	Lampasas	Lampasas.
Douglass, J. G	Itasca	Hill.
Duggan, Malone	Eagle Pass	Maverick.
Duncan, T. G	Victoria	Victoria.
Duringer, W. A	Fort Worth	Tarrant.
Dyer, E. G	Starr	Mills.
Eads, B. F	Marshall	Harrison.
Eagon, S.	Dallas	Dallas.
Ehlinger, Otto	LaGrange	Fayette.
Embry, J. A	Decatur	Wise.
Erwin, J. C	McKinney	Collin.
Evans, J. H	Palestine	Anderson.
Evans, J. R	Devine	Medina.
Evans, W. T	Jewett	Leon.
Farmer, T. J	Dublin	Erath.
Feild, J. T	Fort Worth	Tarrant.
Ferguson, A. D	Frost	Navarro.
Finney, W. D	Wrightsboro	Gonzales.
Florence, J. H	Dallas	Dallas.
Fly, A. W	Galveston	Galveston.
Fly, D. R	Amarillo	Potter.
Ford, F. C	Nacogdoches	Nacogdoches.
Ford, J. F	Decatur	Wise.
Fort, J. M	Paris	Lamar.
Fowler, W. E	Huntsville	Walker.
Frazier, J. M	Belton	Bell.
Fry, J. M	Wills Point	Van Zandt.
Gammon, Wm.	Galveston	Galveston.
Gardner, A. B	Bellville	Austin.
Garrett, W. A	Corsicana	Navarro.
Garwood, A.	New Braunfels	Comal.
Gee, J. N	Bethel	Anderson.
Ghent, H. C	Belton	Bell.
Gibson, B. F	Midway	Madison.
Gidney, C. C	Granger	Williamson.
Gilbert, A. J	Hillsboro	Hill.
Gilbert, Joe	Austin	Travis.
Gilcreest, J. E	Gainesville	Cooke.
Gilson, F. J	Calvert	Robertson.
Goddard, C. W	Holland	Bell.

Name.	Postoffice.	County.
Goeth, R. A.	San Antonio	Bexar.
Graves, Edwin	Gatesville	Coryell.
Graves, M. L.	San Antonio	Bexar.
Gray, A. J.	Comanche	Comanche.
Grigsby, C. M.	Kaufman	Kaufman.
Guenther, J. G.	Moulton	Lavaca.
Guinn, E. E.	Rusk	Cherokee.
Gunby, I. P.	Sherman	Grayson.
Hackler, G. M.	Ennis	Ellis.
Haden, H. C.	Galveston	Galveston.
Hadra, B. E.	Dallas	Dallas.
Halley, J. T.	Galveston	Galveston.
Halley, W. B.	Ballinger	Runnels.
Hamilton, Edward	Houston	Harris.
Harlan, R. P.	Richardson	Dallas.
Harlan, W. J.	Roane	Navarro.
Harper, W. A.	Austin	Travis.
Harris, W. T.	Mathis	San Patricio.
Hathcock, A. L.	Palestine	Anderson.
Heaney, A. J.	Corpus Christi	Nueces.
Herff, Adolph	San Antonio	Bexar.
Herff, F.	San Antonio	Bexar.
Herring, J. H.	Forney	Kaufman.
Hicks, F. M.	San Antonio	Bexar.
Hix, R. W.	Vernon	Wilbarger.
Hodge, C. W.	Quanah	Hardeman.
Holloway, J. A.	Round Rock	Williamson.
Holt, Jno. B.	Lockhart	Caldwell.
Hons, J. M.	San Marcos	Hays.
Howell, R. L.	Killeen	Bell.
Hudson, S. E.	Austin	Travis.
Hudson, T.	Belton	Bell.
Hughes, C. T.	Gainesville	Cooke.
Hunter, J. W.	Waco	McLennan.
Hurt, J. H.	Big Springs	Howard.
Inge, J. M.	Denton	Denton.
Jarrett, J. C.	Valley Mills	Bosque.
Jenkins, A. B.	Hubbard	Hill.
Jenkins, D. J.	Daingerfield	Morris.
Johnson, J. C.	Richmond	Fort Bend.
Johnson, M.	Prairie Lea	Caldwell.
Johnston, E. A.	Amarillo	Potter.
Jones, B. F.	Breckenridge	Stephens.

Name.	Postoffice.	County.
Jones, J. C	Gonzales	Gonzales.
Jones, W. T	Georgetown	Williamson.
Jones, W. T	Fort Davis	Jeff Davis.
Keiller, Wm.	Galveston	Galveston.
Kennedy, T. J	Galveston	Galveston.
Kimble, E. W	Gorman	Eastland.
Kimbrough, W. C	Krum	Denton.
Kimbrough, W. G	Krum	Denton.
King, C. E. R	San Antonio	Bexar.
King, S. F	Denver	Colorado.
Kingsley, B. F	San Antonio	Bexar.
Kirkpatrick, S. B	Waco	McLennan.
Kittrell, T. F	Texarkana	Bowie.
Knox, R. W	Houston	Harris.
Kuhn, Aug.	Walburg	Williamson.
Lancaster, W. H	Lockhart	Caldwell.
Lankford, J. S	San Antonio	Bexar.
Lankford, S. C	Sherman	Grayson.
Layton, L. F	Alice	Nueces.
Leach, H. F	Aledo	Parker.
Leake, H. K	Dallas	Dallas.
Lee, E. A	Aspermont	Stonewall.
Lee, Geo. H	Galveston	Galveston.
LeGrand, C. W	Hempstead	Waller.
LeGrand, G. F	Graham	Young.
LeGrand, L.	Graham	Young.
Link, E. W	Palestine	Anderson.
Link, H. R	Palestine	Anderson.
Lister, S. W	Richmond	Fort Bend.
Litten, Frank	Austin	Travis.
Littlefield, V. C	Leesville	Gonzales.
Lloyd, Thos. P	San Antonio	Bexar.
Logan, J. H	Goldthwaite	Mills.
Loggins, J. C	Ennis	Ellis.
Long, Newt	Santa Anna	Coleman.
Lumpkin, A. F	Meridian	Bosque.
Luttrell, J. M	Mineral Wells	Palo Pinto.
McCaleb, G. W	Gonzales	Gonzales.
McCelvey, J. S	Temple	Bell.
McClendon, E. F	Galveston	Galveston.
McCracken, J. H	Mineral Wells	Palo Pinto.
McCuistion, L. P	Paris	Lamar.
McDaniel, Alfred C	San Antonio	Bexar.

Name.	Postoffice.	County.
McDaniel, A. S.	San Antonio	Bexar.
McDaniel, Ralph	Granger	Williamson.
McGee, J. A.	Rice	Navarro.
McKnight, W. B.	Mansfield	Tarrant.
McNeill, W. T.	Valley Mills	Bosque.
McReynolds, J. O.	Dallas	Dallas.
Mahan, L. L.	Hempstead	Waller.
Maner, F. B.	Itasca	Hill.
Maner, W. H.	Blum	Hill.
Manning, E. R.	Albany	Shackleford.
Marberry, A. J.	San Angelo	Tom Green.
Marchman, O. M.	Grand Saline	Van Zandt.
Meyer, Joe	Paris	Lamar.
Miller, F. P.	Midland	Midland.
Miller, J. W.	Hillsboro	Hill.
Miller, R. F.	Sherman	Grayson.
Miller, T. A.	Corsicana	Navarro.
Milliken, S. E.	Dallas	Dallas.
Monday, W. H.	Terrell	Kaufman.
Moody, G. H.	San Antonio	Bexar.
Moor, H. P.	Alvin	Brazoria.
Moore, J. T.	Galveston	Galveston.
Moore, W. C.	Meyersville	DeWitt.
Moore, W. H.	Runge	Karnes.
Moore, W. M.	Paris	Lamar.
Morris, J. E.	Madisonville	Madison.
Morris, R. T.	Houston	Harris.
Morris, S. M.	Galveston	Galveston.
Moss, R. E.	San Antonio	Bexar.
Mullen, J. A.	Houston	Harris.
Nail, W. R.	Crawford	McLennan.
Neathery, E. J.	Sherman	Grayson.
Neely, W. H.	Terrell	Kaufman.
Newland, W. B.	Gatesville	Coryell.
Nichols, J. R.	Terrell	Kaufman.
Nicholson, R. E.	Chapel Hill	Washington.
Nixon, J. W.	Gonzales	Gonzales.
Norris, F. O.	Eagle Lake	Colorado.
Norsworthy, O. L.	Houston	Harris.
Nott, T. H.	Goliad	Goliad.
Nowlin, Bethel	Jonah	Williamson.
Oates, T. F.	Mexia	Limestone.
O'Barr, J. T.	Ledbetter	Fayette.

Name.	Postoffice.	County.
Osborn, J. D.	Cleburne	Johnson.
Paine, J. F. Y.	Galveston	Galveston.
Pannell, J. A.	Martindale	Caldwell.
Paschal, Frank	San Antonio	Bexar.
Patton, W. D.	Van Alstyne	Grayson.
Pennington, W. H.	Justin	Denton.
Peters, O. K.	Galveston	Galveston.
Pickett, W. S.	Karnes City	Karnes.
Pier, T. J.	Carmine	Fayette.
Pollard, W. J.	Kaufman	Kaufman.
Pool, M. M.	El Campo	Wharton.
Pope, J. G.	Coleman	Coleman.
Powell, J. H. E.	Smithville	Bastrop.
Powell, W. P.	Willis	Montgomery.
Price, J. S.	Beaumont	Jefferson.
Price, Sterling	Barry	Navarro.
Pullen, W. B.	Jacksonville	Cherokee.
Raines, C. B.	Mineral Wells	Palo Pinto.
Ralston, J. C.	Galveston	Galveston.
Randall, Edward	Galveston	Galveston.
Rape, W. A.	Victoria	Victoria.
Rawlings, J. A.	El Paso	El Paso.
Ray, D. M.	Whitewright	Grayson.
Raysor, P. M.	Bryan	Brazos.
Red, S. C.	Houston	Harris.
Redmond, Henry	Corpus Christi	Nueces.
Reuss, J. H.	Cuero	DeWitt.
Rice, S. P.	Marlin	Falls.
Robert, J. J.	Hillsboro	Hill.
Rogers, W. L.	Houston	Harris.
Ross, A. A.	Lockhart	Caldwell.
Rosser, C. M.	Dallas	Dallas.
Rush, R. H.	DeLeon	Comanche.
Russ, W. B.	San Antonio	Bexar.
Sartor, E. R.	Baird	Callahan.
Saunders, Bacon	Fort Worth	Tarrant.
Scarborough, A. O.	Snyder	Scurry.
Schramm, C. J.	Fayetteville	Fayette.
Scott, A. C.	Temple	Bell.
Scott, J. W.	Houston	Harris.
Self, T. N.	Cleburne	Johnson.
Sellers, R. B.	San Antonio	Bexar.
Sessions, E. L.	Hillsboro	Hill.

Name.	Postoffice.	County.
Sessions, I. P.	Rockdale	Milam.
Shapard, R. R.	Anson	Jones.
Shaw, E. M.	Victoria	Victoria.
Shearer, T. W.	Wallisville	Chambers.
Shell, W. T.	Corsicana	Navarro.
Shelmire, J. B.	Dallas	Dallas.
Shields, F. B.	Victoria	Victoria.
Shropshire, W.	Yoakum	DeWitt.
Shultz, C. A.	Alvarado	Johnson.
Simmons, C. B.	Decatur	Wise.
Slater, T. S.	Re	Navarro.
Smith, A. J.	Galveston	Galveston.
Smith, M.	Sulphur Springs	Hopkins.
Smith, M. M.	Austin	Travis.
Smoot, J. B.	Dallas	Dallas.
Spohn, A. E.	Corpus Christi	Nueces.
Spring, J. V.	San Antonio	Bexar.
Starley, W. F., Sr	Mexia	Limestone.
Stem, D. Y.	Slidell	Wise.
Stinson, J. B.	Sherman	Grayson.
Stuart, J. R.	Houston	Harris.
Suttle, I. N.	Corsicana	Navarro.
Swain, W. C.	Cuero	DeWitt.
Tabor, Geo. R.	Austin	Travis.
Taylor, Holman	Marshall	Harrison.
Taylor, T. M.	111 5th Ave., New York,	New York.
Terrell, S. L.	Dallas	Dallas.
Terrell, W. M.	Farmer	Young.
Terry, J. S.	Ennis	Ellis.
Thomas, E. M.	Georgetown	Williamson.
Thomas, G. T.	Rogers	Bell.
Thomason, J. W.	Huntsville	Walker.
Thompson, F. D.	Fort Worth	Tarrant.
Thompson, J. E.	Galveston	Galveston.
Thompson, R. W. P.	Smithville	Bastrop.
Thompson, W. R.	Fort Worth	Tarrant.
Thurston, D. M.	Beeville	Bee.
Titterington, J. B.	Dallas	Dallas.
Townes, J. M.	Joshua	Johnson.
Truehart, C. W.	Galveston	Galveston.
Turner, J. S.	Terrell	Kaufman.
Turner, S. T.	El Paso	El Paso.
Van Nuys, J. C.	Franklin	Robertson.

Name.	Postoffice.	County.
Wagley, T. J.	Cleburne	Johnson.
Warfield, C.	San Antonio	Bexar.
Watkins, W. A.	Kemp	Kaufman.
Watters, E. A.	Crowley	Tarrant.
Webster, H. R.	Texarkana	Bowie.
Weems, M. A.	Columbia	Brazoria.
Weems, M. L., Jr.	Brazoria	Brazoria.
West, H. A.	Galveston	Galveston.
West, W. F.	Waxahachie	Ellis.
Westbrook, W. J.	Sipe Springs	Comanche.
White, F. S.	Terrell	Kaufman.
White, R. R.	Temple	Bell.
Wier, R. R.	Itasca	Hill.
Williams, C. B.	Mineral Wells	Palo Pinto.
Williams, D.	Anson	Jones.
Williamson, A. C.	Kerens	Navarro.
Wilson, J. E.	Dallas	Dallas.
Wilson, J. T.	Sherman	Grayson.
Wilson, R. A.	Cisco	Eastland.
Wilson, T. M.	Thornton	Limestone.
Withers, R. L.	San Antonio	Bexar.
Witt, J. M.	Bartlett	Williamson.
Wolff, A. S.	Brownsville	Brown.
Wood, W. A.	Hubbard	Hill.
Wooten, J. S.	Austin	Travis.
Wooters, J. S.	Crockett	Houston.
Wright, M. A.	El Paso	El Paso.
Yater, C. M.	Grandview	Johnson.
Yeager, C. F.	Mineral Wells	Palo Pinto.
York, J. B.	Brenham	Washington.
Zvesper, J. S.	Ammonsville	Fayette.

OFFICERS OF THE TEXAS STATE MEDICAL
HOUSTON, TEXAS,

Session.	Date of Meeting.	Place of Meeting.	Presidents.	First Vice Presidents.
1	June, 1869	Houston	T. J. Heard	R. H. Jones
2	June, 1870	Houston	R. H. Jones	R. W. Lundy
3	June, 1871	Houston	D. R. Wallace	L. Hundspeth
4	June, 1872	Houston	R. T. Flewellen	J. A. McQueen
5	April, 1873	Waco	D. F. Stuart	H. W. Brown
6	April, 1874	Dallas	A. G. Clopton	T. D. Wooten
7	April, 1875	Austin	H. W. Brown	L. R. Mayfield
8	April, 1876	Marshall	R. H. Harrison	John H. Pope
9	April, 1877	Galveston	W. D. Kelly	Geo. Cupples
10	April, 1878	San Antonio	Geo. Cupples	R. W. White
11	April, 1879	Sherman	John H. Pope	S. F. Matchett
12	April, 1880	Brenham	A. R. Kilpatrick	R. M. Swearingen
13	April, 1881	Waco	Ashbel Smith	S. F. Starley
14	April, 1882	Fort Worth	S. F. Starley	W. P. Burts
15	April, 1883	Tyler	A. P. Brown	T. H. Nott
16	April, 1884	Belton	H. C. Ghent	E. P. Becton
17	April, 1885	Houston	E. P. Becton	R. Rutherford
18	April, 1886	Dallas	T. H. Nott	R. H. Chilton
19	April, 1887	Austin	S. R. Burroughs	R. T. Knox
20	April, 1888	Galveston	J. F. Y. Paine	H. K. Leake
21	April, 1889	San Antonio	R. M. Swearingen	A. Sims
22	April, 1890	Fort Worth	W. P. Burts	J. C. J. King
23	April, 1891	Waco	W. H. Wilkes	P. C. Coleman
24	April, 1892	Tyler	J. D. Osborn	T. J. Bell.
25	April, 1893	Galveston	J. H. Sears	C. M. Rosser.
26	April, 1894	Austin	J. W. McLaughlin	W. L. York
27	April, 1895	Dallas	P. C. Coleman	J. T. Wagley
28	April, 1896	Fort Worth	J. C. Loggins	A. N. Denton
29	April, 1897	Paris	Bacon Saunders	S. C. Red.
30	April, 1898	Houston	J. T. Wilson	J. M. Fort
31	April, 1899	San Antonio	A. B. Gardner	B. E. Hadra
32	April, 1900	Waco	B. E. Hadra	Taylor Hudson
33	April, 1901	Galveston	Taylor Hudson	S. C. Red
34	May, 1902	Dallas	S. C. Red	J. E. Thompson

* Died July, 1886, and F. E. Daniel was appointed till next meeting.

ASSOCIATION SINCE ITS ORGANIZATION AT JUNE 16, 1869.

SECOND VICE PRESIDENTS.	THIRD VICE PRESIDENTS.	SECRETARIES.	TREASURERS.
D. W. Wallace		A. Connell	F. Hassenberg.
W. J. Locke		A. Connell	W. P. Riddell.
J. T. Norris		A. Connell	W. P. Riddell.
D. F. Stuart		A. Connell	J. Larendon.
J. M. Morrison		S. O. Young	J. Larendon.
M. H. Oliver		W. A. East	J. Larendon.
M. A. Taylor	R. H. Harrison	W. A. East	J. Larendon.
T. W. Wylie	W. H. Park	W. A. East	J. Larendon.
R. M. Swearingen	J. H. Sears	W. A. East	J. Larendon.
W. E. Saunders	J. D. Field	W. A. East	J. Larendon.
S. F. Starley	S. Eagan	W. A. East	J. Larendon.
E. J. Beall	O. H. Seeds	R. H. L. Bibb	J. Larendon.
J. W. McLaughlin	J. A. Summers	R. H. L. Bibb	J. Larendon.
W. A. Adams	Joe. S. Willis	W. J. Burt	J. Larendon.
J. D. Osborn	Frank Allen	W. J. Burt	J. Larendon.
H. H. Darr	M. Martin	W. J. Burt	J. Larendon.
John C. Jones	S. R. Burroughs	W. J. Burt	J. Larendon.
J. C. Loggins	H. L. Parsons	W. J. Burt*	J. Larendon.
A. M. Douglass	A. A. Terhune	F. E. Daniel	J. Larendon.
A. V. Doak	O. Eastland	F. E. Daniel	J. Larendon.
B. F. Kingsley	I. E. Clark	F. E. Daniel	J. Larendon.
M. D. Knox	W. W. Reeves	F. E. Daniel	J. Larendon.
W. L. Rogers	B. H. Vaughn	H. A. West	J. Larendon.
F. W. Pitts, Jr	T. J. Bennett	H. A. West	J. Larendon.
E. M. Rabb	W. A. Watkins	H. A. West	J. Larendon.
W. R. Blallock	W. H. Lancaster	H. A. West	J. Larendon.
N. B. Kennedy	T. B. Bass	H. A. West	J. Larendon.
J. S. Letcher	David Cerna	H. A. West	J. Larendon.
A. C. Scott	C. M. Alexander	H. A. West	J. Larendon.
Taylor Hudson	R. W. Knox	H. A. West	J. Larendon.
Geo. H. Lee	F. D. Thompson	H. A. West	R. F. Miller.
L. Ashton	S. T. Turner	H. A. West	R. F. Miller.
J. W. Nixon	W. A. Watkins	H. A. West	R. F. Miller.
J. E. Gilcreest	H. K. Leake	H. A. West	R. F. Miller.

SOCIETIES IN AFFILIATION.

The following societies, having complied with Article VII, of the Constitution, are entitled to representation at the next annual meeting of the Association:

Brazos Valley Medical Association. Secretary, Dr. H. B. Briggs, Easterly. Membership, 125.

Dallas Medical and Surgical Society. President, Dr. Emil Aranson, Dallas; Secretary, Dr. J. W. Bourland, Dallas. Membership, 41.

Harrison County Medical Society. President, Dr. F. S. Vaughan, Jonesville; Secretary, Dr. Holman Taylor, Marshall. Membership, 24.

Lamar County Medical Association. President, Dr. W. G. McCuiston, Paris; Secretary, Dr. T. C. Moody, Sylvan. Membership, 36.

Cooke County Medical Association. President, Dr. J. K. Harper, Gainesville; Secretary, Dr. J. W. Echols, Gainesville. Membership, 31.

Hill County Medical and Surgical Association. President, Dr. J. J. Robert, Hillsboro; Secretary, Dr. J. M. Martin, Hillsboro. Membership, 27.

North Texas Medical Association. President, Dr. J. B. Shelmire, Dallas; Secretary, Dr. H. L. Moore, Van Alstyne. Membership, 550.

Austin Academy of Medicine. Dr. W. A. Harper, Secretary. Membership, 23.

Austin District Medical Society. Secretary, Dr. W. A. Harper, Austin. Membership, 82.

Kaufman County Medical Society. President, Dr. W. H. Munday, Terrell; Secretary, Dr. W. J. Pollard, Kaufman. Membership, 26.

Smith County Medical Society. President, Dr. T. J. Bell, Tyler; Secretary, Dr. Albert Woldert, Tyler. Membership, 13.

West Texas Medical Association. President, Dr. Wm. E. Luter, San Antonio; Secretary, Dr. W. B. Russ, San Antonio. Membership, 72.

Brenham Medical Society. President, Dr. J. T. Spann, Chappel Hill; Secretary, Dr. J. B. York, Brenham. Membership, 20.

Fort Worth Medical Association. President, Dr. J. T. Feild, Fort Worth; Secretary, Dr. L. A. Barber, Fort Worth. Membership, 33.

Van Zandt County Medical Society. President, Dr. D. C. Darnell, Grand Saline; Secretary, Dr. O. M. Marchman, Grand Saline. Membership, 18.

Northwest Texas Medical Association. Secretary, Dr. J. L. Elder, Bowie.

South Texas Medical Association. President, Dr. R. W. Knox, Houston; Secretary, Dr. W. S. Wier, Beaumont. Membership, 150.

Johnson County Medical Society. Secretary, Dr. W. P. Ball, Cleburne. Membership, 30.

Houston District Medical Society. Secretary, Dr. Edward Hamilton, Houston. Membership, 30.

El Paso County Medical Society. Secretary, Dr. J. A. Rawlings, El Paso. Membership, 30.

Corsicana District Medical Association. Secretary, Dr. W. D. Fountain, Corsicana. Membership, 60.

Panhandle Medical Association. Secretary, Dr. T. W. Carroll, Clarendon. Membership, 25.

East Texas Medico-Chirurgical Society. Secretary, Dr. E. E. Guinn, Rusk. Membership, 50.

Grayson County Medical Society. Secretary, Dr. W. R. Hoard, Sherman. Membership, 54.

Practitioners' Society of Dallas. Secretary, Dr. J. E. Wilson, Dallas. Membership, 15.

Denton County Medical Society. Secretary, Dr. C. P. Yeager, Pilot Point. Membership, 37.

Williamson County Medical Society. Secretary, Dr. E. M. Thomas, Georgetown. Membership not given.

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